FOSTER WHEELER ENVIRONMENTAL CORPORATION

FIRST LONG-TERM SOIL VAPOR SAMPLING RESULTS, OCTOBER 1998

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JET PROPULSION LABORATORY
4800 Oak Grove Drive
Pasadena, California 91109

February 2000

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AT THE

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4800 Oak Grove Drive
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Prepared by

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February 2000

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Refer to: GEN20001102

NASA Management Office
Attention: Peter Robles
M/S: 180-801
4800 Oak Grove Drive
Pasadena, California 91109

Subject: Long Term Quarterly Soil Vapor Monitoring Reports, Events 1 through 5.

Dear Peter:

Enclosed are 16 copies of each of the subject reports for distribution.

If you have any questions, or need further information, please feel free to contact me at 818-354-0180.

Sincerely,

Charles L. Buril
Environmental Affairs Office – Manager

C. J. Novelly

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1.0 INTRODUCTION

Presented in this report are the results of the first long-term soil vapor sampling event completed as part of the long-term monitoring program being conducted at the NASA-Jet Propulsion Laboratory (JPL) for Operable Unit 2 (OU-2). The purpose of this program is to monitor the horizontal and vertical distributions of volatile organic compound (VOC) vapors in the vadose zone beneath the JPL site. From October 19 to October 28, 1998, Foster Wheeler Environmental Corporation (Foster Wheeler) personnel collected soil-vapor samples from the deep soil vapor monitoring well Nos. 25 through 28 and Nos. 32 through 39 at the locations shown in Figure 1-1.

All soil vapor samples collected during the event were analyzed for VOCs by Transglobal Environmental Geochemistry (TEG) in an on-site laboratory that is certified by the California Department of Health Services (CDHS). The analyses were performed in accordance with EPA Method 8010/8020 and the California Regional Water Quality Control Board, Los Angeles Region (RWQCB), protocols and guidance.

A description of how the 12 soil-vapor wells were constructed is presented in Section 2.0, and sampling procedures are described in Section 3.0. A summary of all VOCs detected during this first long-term soil vapor sampling event, including locations and depths, is contained in Section 4.0. The soil-vapor data evaluation report for all samples analyzed during this sampling event is located in Appendix A and summarized in Section 5.0. Cited references are listed in Section 6.0. Laboratory reports for all samples analyzed, along with chain-of-custody forms, are included in Appendix B. The initial three-point calibration data and the daily calibration-verification standards for each day's sampling are also included in this appendix.

2.0 SOIL VAPOR WELL CONSTRUCTION

A Roto-Sonic 150 drilling rig was used to install the deep soil vapor monitoring well Nos. 25 through 28 and Nos. 32 through 39. Sonic drilling techniques use a hydraulically driven head that imparts adjustable high frequency sinusoidal wave vibrations into the drill rods and core barrel, plus the outer casing, to create a cutting action at the bit face. When required, the drill rods and casing were rotated to evenly distribute the energy and the wear on the drill bit face. Continuous cores of subsurface materials were retrieved using a 10-foot-long, 6-inch-diameter core barrel. The 8-inch-diameter outer casing was advanced after the core barrel moved ahead to collect the core sample and then pulled out of the borehole. This procedure left a cavity so that cuttings that are "shaved" from the borehole wall as the outer casing is being advanced can be collected, thus minimizing soil compression and friction with the surrounding soil materials. These shaved cuttings were then removed from inside the casing, or from the open hole below the bottom of the casing, before the next length of core was collected. Borehole integrity was maintained by the casing after the drill string was pulled from the hole and during installation of the soil-vapor wells. Construction methods for installing the deep soil vapor monitoring well Nos. 25 through 28 and Nos. 32 through 39 were completed according to the procedures described below.

The total depth of each well was determined by the NASA Authorized Subcontractor Operable Unit Manager for OU-2 based on the depth where groundwater was encountered in the borehole or when perched groundwater was unexpectedly encountered.

The numbers of sampling tips (a maximum of ten per well) and the depths at which they were to be placed in each well were determined in the field based on soil lithologies, FID measurements made through the plastic bags enclosing the soil cores, and the final open-hole depths of the borehole.

Since either groundwater or perched groundwater was encountered in all of these soil-vapor wells and accumulated in the bottom of each borehole, 1/4-inch bentonite pellets were used to absorb the water and keep the bottom of the borehole in a dry condition as deeply as possible. Depending on the stabilized water levels, varying amounts (1.1 to 6.5 cubic feet) of pellets were added to the bottoms of the boreholes. One cubic foot of dry pellets raises the borehole bottom 3.5 feet (not allowing for expansion due to hydration). A weighted sounding line was used to evaluate the dryness of the borehole's bottom; if the retrieved weight was clean, it indicated that dry bentonite was at the bottom of the open borehole. The bottom was resounded when well installation started 1 to 2 hours later.

A hanger pipe, consisting of 10-foot lengths of 1-inch-diameter Schedule 80 PVC pipe was placed to the bottom of the borehole before the sampling tips and 1/8-inch-OD Nylaflow® tubing were installed. The interior of each hanger-pipe section was incrementally backfilled from bottom to top with Enviroplug® No. 16 bentonite granules and each increment was hydrated

with deionized water via 5/16-inch-diameter polyethylene tubing as each pipe section was being lowered into the soil-vapor well.

Because of only having the outer casing to stabilize the borehole walls, all sampling tips and attached Nylaflow® tubing had to be installed individually for each sampling depth. Sampling tips and tubing were weighted with 6-inch lengths of ¼-inch-diameter galvanized pipe and lowered to their field-determined depths and suspended from the top of the hanger pipe assembly.

The surface end of each Nylaflow® tubing was coded with either a single or double band of colored plastic tape to identify the sequential number and depths of each sampling tip placed in the soil-vapor well. A single band of yellow tape indicated the shallowest tip (tip No. 1) and a double band of black tape identified the deepest tip (tip No. 10). Single bands of green, red, blue, and black tape were used to sequentially identify tip Nos. 2 through 5, respectively, and double bands of yellow, green, red, and blue were used to identify the number and progressive depths of sampling tip Nos. 6 through 9, respectively.

Annular spaces around the sampling tips with attached Nylaflow® tubing and the borehole walls were backfilled with clean, kiln-dried RMC Lonestar® #3 sand and Enviroplug® No. 16 pure bentonite granules. A minimum of 1 foot of sand was placed below and above the sampling tip, and the intervals between the sand were backfilled with bentonite granules that were artificially hydrated with 2 to 3 gallons of potable water in the middle of each bentonite section. The remainder of the bentonite hydrated naturally by absorbing soil moisture from the surrounding formation. The annular space above the uppermost sampling tip was backfilled with bentonite granules (hydrated in place) to within 2 feet of the ground surface. Upon completion of backfilling, the hanger pipe was cut off approximately 4 to 6 inches below the surface of the surrounding surface area and the color-coded Nylaflow® tubings were sealed with air-tight, 1/8-inch Swagelok® tubing caps.

A 12-inch-diameter traffic box was installed at each soil-vapor well. Concrete was used to secure the traffic box in-place slightly above grade so as to direct surface runoff away from the traffic box's cover plate. After the soil vapor well assembly and traffic box were installed, the remaining open portion of the drillhole (1 to 2 feet) was filled with sand to complete the soil vapor well installation.

A summary of the construction details for the deep soil vapor monitoring wells is presented in Table 2-1.

3.0 SOIL VAPOR SAMPLING PROCEDURES

During October 1998, soil-vapor samples were collected and analyzed from deep soil vapor monitoring well Nos. 25 through 28 and Nos. 32 through 39. One hundred and eighteen depth-specific vapor samples, including 19 collocated duplicate samples were collected and analyzed for 25 primary target VOC compounds in accordance with the RWQCB (1997) guidance.

Soil-vapor samples were withdrawn from the soil through the sampling tips and 1/8-inch-outside diameter (OD) Nylaflow® tubing using calibrated, gas-tight, 60-cc sterile syringes fitted with a three-way on-off valve. Prior to collecting the soil-vapor sample, four volumes of the length of the tubing were purged to flush the tubing and fill it with in-situ soil vapor. Since each foot of tubing has an internal volume of 1 cc, the total volume purged was easily measured with the calibrated syringes. Following purging, a 60-cc soil-vapor sample was collected in the syringe, the valve turned to the off position, and transferred immediately to the on-site mobile laboratory for analysis. During sampling, neither water vapor nor condensation was observed in the transparent sampling syringes. Because the purge and sample volumes were small, a vacuum pump was not required to evacuate the tubing or to collect a soil-vapor sample. To demonstrate reproducibility of results, a duplicate soil-vapor sample was collected and analyzed after every five environmental samples.

Samples collected were analyzed on-site in a mobile laboratory certified (Certification No. 1745) by the CDHS to perform analyses by EPA Methods 8010 and 8020 for the parameters listed in Table 3-1. The time between sample collection and analysis was, at most, only a few minutes.

4.0 ANALYTICAL RESULTS

During the RI for OU-2, deep soil vapor well Nos. 25 through 28 were sampled three times and well Nos. 32 through 39 were sampled twice. Results of those sampling events indicated that four VOCs were more frequently detected in soil-vapor samples at elevated concentrations to other VOCs. These four VOCs are carbon tetrachloride (CCl_4), 1,1,2-trichloro-1,2,2-trifluroroethane (Freon 113), trichloroethene (TCE), and 1,1-dichloroethene (1,1-TCE). Carbon tetrachloride and Freon 113 were detected in most soil-vapor samples where VOCs were present and often the only VOCs detected; CCl_4 was usually detected at higher concentrations than Freon 113. The frequency of detection, concentrations, land horizontal and vertical distribution of these four major VOCs are thoroughly discussed and presented in the OU-2 RI report (FWENC, 1999b).

A soil-vapor extraction (SVE) pilot test (VE-1) was initiated in April 1998, at the location shown in Figure 4-1, prior to the last two RI soil vapor sampling events (May and June 1998), and was terminated in June 1998. Results of the May and June 1998 RI sampling events indicated that VOC concentrations had been somewhat reduced in nearby deep soil vapor well Nos. 25, 26, 27, and 28, but concentrations detected in well Nos. 32 through 39 were relatively the same as detected previously.

The VOCs most frequently detected during this first long-term sampling event were, as in the past, CCl_4, Freon 113, TCE, and 1,1-TCE. For the most part, concentrations measured during this event are very similar to those measured in all 12 monitoring wells during the May and June 1998 sampling events, except for Freon 113, which was detected at higher average concentrations in all wells. Only one other VOC, chloroform, was detected in a single soil-vapor well (No. 36) during this sampling event at concentrations slightly above the analytical detection limit of 1.0 microgram per liter of vapor (µg/L-vapor). A summary of the analytical results for all samples collected during this sampling event are presented in Table 4-1, and the laboratory reports for each day's sampling are presented in Appendix B-1. Chain-of-custody forms are included in Appendix B-2.

Locations of detections with depth for CCl_4, Freon 113, TCE, and 1,1-DCE are shown in Figures 4-1, 4-2, 4-3, and 4-4, respectively. Total VOC concentrations with depth are presented in Figure 4-5, and the estimated horizontal and vertical distribution of total VOCs along a section through the north-central part of the site (where VOC concentrations are the highest) is presented in Figure 4-6. Groundwater elevations shown in Figure 4-6 are based on information contained in the groundwater monitoring report for October-November 1998 (FWENC, 1999a).

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

Presented in this section is a brief summary of the quality assurance and quality control (QA/QC) procedures followed during the first long-term soil vapor sampling event. A more thorough discussion on the QA/QC processes and data evaluation are presented in Appendix A, Soil Vapor Data Evaluation Report.

All sample analyses were performed using an external, three-point standard calibration method (see Appendix B3). For more target analytes, both detectors on the gas chromatograph (GC) were calibrated over a range equivalent to 2 to 100 µg/L analyte in soil vapor. Analytical system performance was verified at the beginning of each analytical day with an "opening standard" and a "closing standard" after the last environmental sample analysis for the day. A "continuing standard" was analyzed after the tenth environmental sample run that day. If ten or fewer samples were analyzed during the day, the closing standard substituted for the continuing standard. Results of the daily opening, closing, and continuing (if applicable) standards are presented in Appendix B4.

During each analytical day, the environmental sample analyses were bracketed by check standards which verified acceptable system performance for the analytes listed in the daily calibration data summary tables (Appendix B4). Response factors (RF) calculated from the opening standard results were within $\pm$15 percent of the mean calibration factors calculated from initial calibration results. Results for closing standards and continuing standards were within $\pm$20 percent of initial calibration results. Therefore, no data were qualified because of standardization problems or instrumental drift. Percent differences between analyte-specific response factors were always within applicable control limits.

Field blanks of ambient air from inside the field laboratory trailer were analyzed immediately after the opening verification standard and were clean in all cases. No matrix spikes or laboratory replicates were required, although some of the samples were reanalyzed at smaller injection volumes so that the instrument response (in terms of area counts) fell within the working calibration range of the GC.

Three surrogate compounds (1,4-difluorobenzene, chlorobenzene, and 4-bromofluorobenzene) were injected into the GC along with the environmental samples as a QA/QC check on recovery limits. In accordance with RWQCB (1997) protocols, surrogate recoveries should be in the range of 75 to 130 percent. All surrogate recoveries obtained during this sampling event satisfied this criteria by a wide margin, usually within a recovery range of 85 to 115 percent.

No sample analysis data obtained during this sampling event were rejected as unusuable although several sample results were not within the working calibration range of the GC. However, these extrapolated results still provide very useful information. Overall, the assessment of soil vapor and corresponding control sample data indicate that data quality objectives were achieved in terms of precision, accuracy, representativeness, comparability, and completeness for all analytes sampled.

6.0 REFERENCES

1. FWENC (Foster Wheeler Environmental Corporation). 1999a. *Quarterly Groundwater Monitoring Results, October-November 1998*. March.

2. FWENC (Foster Wheeler Environmental Corporation). 1999b. *Final Remedial Investigation Report for Operable Unit 2: Potential On-Site Contaminant Source Areas.* Volume 1. November.

3. RWQCB (California Regional Water Quality Control Board, Los Angeles Region). 1997. *Interim Guidance for Active Soil Gas Investigation*. February 25.

TABLES

TABLE 2-1

SUMMARY OF CONSTRUCTION DETAILS FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
25	3/31/97	3/31/97	Sonic	202	1	20	1199.6	1179.6
					2	40		1159.6
					3	60		1139.6
					4	85		1114.6
					5	100		1099.6
					6	120		1079.6
					7	145		1054.6
					8	165		1034.6
					9	180		1019.6
					10	190		1009.6
26	3/27/97	3/28/97	Sonic	206	1	20	1201.8	1181.8
					2	35		1166.8
					3	55		1146.8
					4	80		1121.8
					5	100		1101.8
					6	115		1086.8
					7	140		1061.8
					8	160		1041.8
					9	180		1021.8
					10	195		1006.8
27	3/18/97	3/18/97	Sonic	214	1	20	1214.2	1194.2
					2	35		1179.2
					3	60		1154.2
					4	85		1129.2
					5	100		1114.2
					6	120		1094.2
					7	140		1074.2
					8	160		1054.2
					9	180		1034.2
					10	205		1009.2

TABLE 2-1

SUMMARY OF CONSTRUCTION DETAILS FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
28	3/13/97	3/14/97	Sonic	179	1	20	1176.7	1156.7
					2	45		1131.7
					3	65		1111.7
					4	80		1096.7
					5	105		1071.7
					6	120		1056.7
					7	140		1036.7
					8	160		1016.7
32	3/29/98	3/29/98	Sonic	210	1	25	1206.6	1181.6
					2	40		1166.6
					3	55		1151.6
					4	70		1136.6
					5	90		1116.6
					6	115		1091.6
					7	135		1071.6
					8	155		1051.6
					9	180		1026.6
					10	195		1011.6
33	3/31/98	4/1/98	Sonic	213	1	20	1214.0	1194.0
					2	40		1174.0
					3	60		1154.0
					4	85		1129.0
					5	105		1109.0
					6	120		1094.0
					7	140		1074.0
					8	160		1054.0
					9	180		1034.0
					10	200		1014.0

TABLE 2-1

SUMMARY OF CONSTRUCTION DETAILS FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
34	4/8/98	4/8/98	Sonic	135	1	20	1164.3	1144.3
					2	35		1129.3
					3	50		1114.3
					4	65		1099.3
					5	80		1084.3
					6	95		1069.3
					7	108		1056.3
					8	118		1046.3
35	4/14/98	4/14/98	Sonic	162.5	1	20	1183.2	1163.2
					2	35		1148.2
					3	50		1133.2
					4	60		1123.2
					5	80		1103.2
					6	95		1088.2
					7	110		1073.2
					8	125		1058.2
					9	140		1043.2
					10	155		1028.2
36	3/27/98	3/27/98	Sonic	117	1	20	1232.8	1212.8
					2	35		1197.8
					3	55		1177.8
					4	75		1157.8
					5	92		1140.8
37	4/7/98	4/7/98	Sonic	193	1	25	1195.7	1170.7
					2	40		1155.7
					3	60		1135.7
					4	80		1115.7
					5	100		1095.7
					6	120		1075.7
					7	140		1055.7

TABLE 2-1

SUMMARY OF CONSTRUCTION DETAILS FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
					8	155		1040.7
					9	170		1025.7
					10	185		1010.7
38	4/15/98	4/15/98	Sonic	178.5	1	25	1185.6	1160.6
					2	45		1140.6
					3	65		1120.6
					4	80		1105.6
					5	95		1090.6
					6	110		1075.6
					7	125		1060.6
					8	140		1045.6
					9	155		1030.6
					10	170		1015.6
39	4/17/98	4/17/98	Sonic	138	1	20	1144.1	1124.1
					2	35		1109.1
					3	50		1094.1
					4	70		1074.1
					5	85		1059.1
					6	100		1044.1
					7	110		1034.1
					8	120		1024.1
					9	130		1014.1

Notes:

amsl – Above mean sea level.
bgs – Below ground surface.
ft – Feet.

TABLE 3-1

SUMMARY OF PRIMARY TARGET COMPOUNDS FOR ANALYSES PERFORMED ON SOIL-VAPOR SAMPLES

Parameter	Method	Container	Maximum Holding Time	Detection Limits
Volatile Organic Compounds	8010/8020	Syringe	15 minutes	
Benzene				1.0 µg/L
Vinyl chloride				1.0 µg/L
Carbon tetrachloride				1.0 µg/L
1,2-Dichloroethane				1.0 µg/L
Trichloroethene				1.0 µg/L
1,1-Dichloroethene				1.0 µg/L
1,1,1-Trichloroethane				1.0 µg/L
Bromomethane				1.0 µg/L
Chloroethane				1.0 µg/L
Chloroform				1.0 µg/L
trans-1,2-Dichloroethene				1.0 µg/L
cis-1,2-Dichloroethene				1.0 µg/L
Dichloromethane				1.0 µg/L
1,1-Dichloroethane				1.0 µg/L
Ethylbenzene				1.0 µg/L
1,1,2-Trichloroethane				1.0 µg/L
1,1,1,2-Tetrachloroethane				1.0 µg/L
1,1,2,2-Tetrachloroethane				1.0 µg/L
Tetrachloroethene				1.0 µg/L
Toluene				1.0 µg/L
m,p-Xylenes				1.0 µg/L
o-Xylene				1.0 µg/L
Trichlorofluoromethane (Freon 11)				1.0 µg/L
Dichlorodifluoromethane (Freon 12)				1.0 µg/L
Trichlorotrifluoroethane (Freon 113)				1.0 µg/L

TABLE 4-1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
25	20	10/19/98	VPSV-523	ND	ND	ND	ND	ND
25	40	10/19/98	VPSV-524	ND	ND	ND	ND	ND
25	60	NS	NS	P	P	P	P	P
25	85	10/19/98	VPSV-525	83	ND	ND	ND	ND
25	100	NS	NS	P	P	P	P	P
25	120	10/19/98	VPSV-526	119	ND	ND	ND	ND
25	145	10/19/98	VPSV-527	286 J	152 J	ND	ND	ND
25	145	10/19/98	VPSV-528(DUP)	285	147	ND	ND	ND
25	165	10/19/98	VPSV-529	217 J	233 J	ND	ND	ND
25	180	10/19/98	VPSV-530	118	133	ND	ND	ND
25	190	10/19/98	VPSV-531	124	71	1.6	ND	ND
26	20	NS	NS	P	P	P	P	P
26	35	10/19/98	VPSV-532	ND	ND	ND	ND	ND
26	55	10/19/98	VPSV-533	ND	ND	ND	3.9	ND
26	55	10/19/98	VPSV-534(DUP)	ND	ND	ND	4.2	ND
26	80	10/19/98	VPSV-535	74	ND	4.4	6.7	ND
26	100	NS	NS	P	P	P	P	P
26	115	10/19/98	VPSV-536	153 J	ND	1.2	3.0	ND
26	140	10/19/98	VPSV-537	167 J	7.9	ND	1.6	ND
26	160	10/20/98	VPSV-538	81	ND	ND	ND	ND
26	180	10/20/98	VPSV-539	72	ND	ND	ND	ND
26	195	10/20/98	VPSV-540	83	ND	1.4	ND	ND
26	195	10/20/98	VPSV-541(DUP)	95	ND	1.3	ND	ND
27	20	10/20/98	VPSV-542	ND	ND	ND	ND	ND
27	35	NS	NS	W	W	W	W	W
27	60	10/20/98	VPSV-543	ND	49	ND	ND	ND
27	85	10/20/98	VPSV-544	7.4	61	ND	ND	ND
27	100	10/20/98	VPSV-545	193 J	188 J	ND	ND	ND
27	100	10/20/98	VPSV-546(DUP)	203	169	ND	ND	ND
27	120	10/20/98	VPSV-547	110	215	ND	ND	ND

TABLE 4-1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
27	140	10/20/98	VPSV-548	161	268	1.2	ND	ND
27	160	10/20/98	VPSV-549	189	212	ND	ND	ND
27	180	10/20/98	VPSV-550	155	265	ND	ND	ND
27	205	10/20/98	VPSV-551	413 J	133	ND	ND	ND
27	205	10/20/98	VPSV-552(DUP)	446	130	ND	ND	ND
28	20	10/21/98	VPSV-565	ND	ND	ND	ND	ND
28	45	10/21/98	VPSV-566	ND	ND	ND	ND	ND
28	65	NS	NS	P	P	P	P	P
28	80	10/21/98	VPSV-567	22	ND	ND	ND	ND
28	105	10/21/98	VPSV-568	210 J	127	ND	ND	ND
28	120	10/21/98	VPSV-569	438 J	429 J	ND	ND	ND
28	120	10/21/98	VPSV-570(DUP)	451 J	403 J	ND	ND	ND
28	140	NS	NS	P	P	P	P	P
28	160	NS	NS	P	P	P	P	P
32	25	10/26/98	VPSV-597	ND	ND	ND	ND	ND
32	40	10/26/98	VPSV-598	ND	ND	ND	ND	ND
32	55	10/26/98	VPSV-599	ND	ND	ND	ND	ND
32	55	10/26/98	VPSV-600(DUP)	ND	ND	ND	ND	ND
32	70	10/26/98	VPSV-601	ND	ND	ND	ND	ND
32	90	10/26/98	VPSV-602	ND	ND	ND	ND	ND
32	115	NS	NS	P	P	P	P	P
32	135	10/26/98	VPSV-603	ND	ND	ND	ND	ND
32	155	10/26/98	VPSV-604	14	193 J	ND	ND	ND
32	180	10/26/98	VPSV-605	110	144	4.9	ND	ND
32	180	10/26/98	VPSV-606(DUP)	125	138	6.4	ND	ND
32	195	10/26/98	VPSV-607	88	193 J	3.2	ND	ND
33	20	10/21/98	VPSV-553	ND	ND	ND	ND	ND
33	40	10/21/98	VPSV-554	12	87	6.3	25	ND
33	60	10/21/98	VPSV-555	89	1.3	4.3	12	ND
33	85	10/21/98	VPSV-556	140	ND	2.8	8.3	ND

TABLE 4-1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
33	105	10/21/98	VPSV-557	191 J	ND	2.4	6.8	ND
33	105	10/21/98	VPSV-558(DUP)	204	ND	2.5	7.4	ND
33	120	10/21/98	VPSV-559	141	ND	2.2	6.4	ND
33	140	10/21/98	VPSV-560	179 J	ND	ND	7.9	ND
33	160	10/21/98	VPSV-561	94	ND	ND	8.6	ND
33	180	10/21/98	VPSV-562	67	ND	ND	6.8	ND
33	200	10/21/98	VPSV-563	78	ND	1.3	5.9	ND
33	200	10/21/98	VPSV-564(DUP)	77	ND	1.1	5.8	ND
34	20	10/22/98	VPSV-583	ND	ND	ND	ND	ND
34	35	10/22/98	VPSV-584	ND	ND	ND	ND	ND
34	50	10/22/98	VPSV-585	ND	ND	ND	ND	ND
34	60	10/22/98	VPSV-586	4.5	ND	ND	ND	ND
34	80	10/22/98	VPSV-587	6.1	ND	ND	ND	ND
34	80	10/22/98	VPSV-588(DUP)	6.0	ND	ND	ND	ND
34	95	10/23/98	VPSV-589	28	ND	ND	ND	ND
34	108	10/23/98	VPSV-590	157 J	62	ND	ND	ND
34	118	10/23/98	VPSV-591	154 J	82	ND	ND	ND
35	20	10/22/98	VPSV-571	ND	ND	ND	ND	ND
35	35	10/22/98	VPSV-572	ND	ND	ND	ND	ND
35	50	10/22/98	VPSV-573	ND	ND	ND	ND	ND
35	60	10/22/98	VPSV-574	ND	ND	ND	ND	ND
35	80	10/22/98	VPSV-575	18	36	ND	ND	ND
35	80	10/22/98	VPSV-576(DUP)	20	37	ND	ND	ND
35	95	10/22/98	VPSV-577	45	48	ND	ND	ND
35	110	10/22/98	VPSV-578	65	47	ND	ND	ND
35	125	10/22/98	VPSV-579	74	54	ND	ND	ND
35	140	10/22/98	VPSV-580	125	64	ND	ND	ND
35	155	10/22/98	VPSV-581	59	61	2.4	ND	ND
35	155	10/22/98	VPSV-582(DUP)	63	68	2.8	ND	ND

TABLE 4-1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
36	20	NS	NS	P	P	P	P	P
36	35	10/23/98	VPSV-592	9.2	ND	ND	ND	ND
36	55	10/23/98	VPSV-593	17	ND	ND	ND	1.1
36	55	10/23/98	VPSV-594(DUP)	16	ND	ND	ND	1.1
36	75	10/23/98	VPSV-595	22	31	ND	ND	3.8
36	92	10/23/98	VPSV-596	20	29	ND	ND	4.0
37	25	10/26/98	VPSV-608	ND	ND	ND	ND	ND
37	40	10/26/98	VPSV-609	24	ND	1.2	ND	ND
37	60	10/26/98	VPSV-610	43	ND	ND	ND	ND
37	80	10/26/98	VPSV-611	64	51	2.3	ND	ND
37	80	10/26/98	VPSV-612(DUP)	60	48	2.4	ND	ND
37	100	10/26/98	VPSV-613	62	57	3.5	ND	ND
37	120	10/27/98	VPSV-614	32	ND	6.1	ND	ND
37	140	10/27/98	VPSV-615	30	37	4.5	ND	ND
37	155	10/27/98	VPSV-616	26	47	2.3	ND	ND
37	170	10/27/98	VPSV-617	23	38	3.0	ND	ND
37	185	10/27/98	VPSV-618	12	6.5	2.2	ND	ND
37	185	10/27/98	VPSV-619(DUP)	12	6.8	1.7	ND	ND
38	25	10/27/98	VPSV-620	ND	ND	ND	ND	ND
38	45	10/27/98	VPSV-621	5.6	ND	ND	ND	ND
38	65	10/27/98	VPSV-622	15	57	2.2	ND	ND
38	80	10/27/98	VPSV-623	11	74	1.6	ND	ND
38	80	10/27/98	VPSV-624(DUP)	15	56	2.1	ND	ND
38	95	NS	NS	W	W	W	W	W
38	110	10/27/98	VPSV-625	13	43	1.4	ND	ND
38	125	10/27/98	VPSV-626	18	81	1.8	ND	ND
38	140	10/27/98	VPSV-627	18	67	1.9	ND	ND
38	155	10/27/98	VPSV-628	17	75	1.8	ND	ND
38	170	10/27/98	VPSV-629	22	103	3.0	ND	ND
38	170	10/27/98	VPSV-630(DUP)	24	112	3.4	ND	ND

TABLE 4-1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
39	20	10/28/98	VPSV-631	ND	ND	ND	ND	ND
39	35	10/28/98	VPSV-632	ND	ND	ND	ND	ND
39	50	10/28/98	VPSV-633	ND	ND	ND	ND	ND
39	70	10/28/98	VPSV-634	ND	ND	ND	ND	ND
39	85	10/28/98	VPSV-635	3.7	66	1.5	ND	ND
39	85	10/28/98	VPSV-636(DUP)	3.9	78	1.6	ND	ND
39	100	10/28/98	VPSV-637	7.9	77	3.3	ND	ND
39	110	10/28/98	VPSV-638	9.8	67	4.7	ND	ND
39	120	10/28/98	VPSV-639	6.5	50	10	ND	ND
39	130	10/28/98	VPSV-640	6.2	50	15	ND	ND

Notes:

bgs - Below ground surface.
DUP - Duplicate samples.
J - Estimated concentration; result exceeded calibration range.
ND - Not detected.
NS - Not sampled.
P - Sampling port plugged.
W - Sampling port inundated with water.

FIGURES

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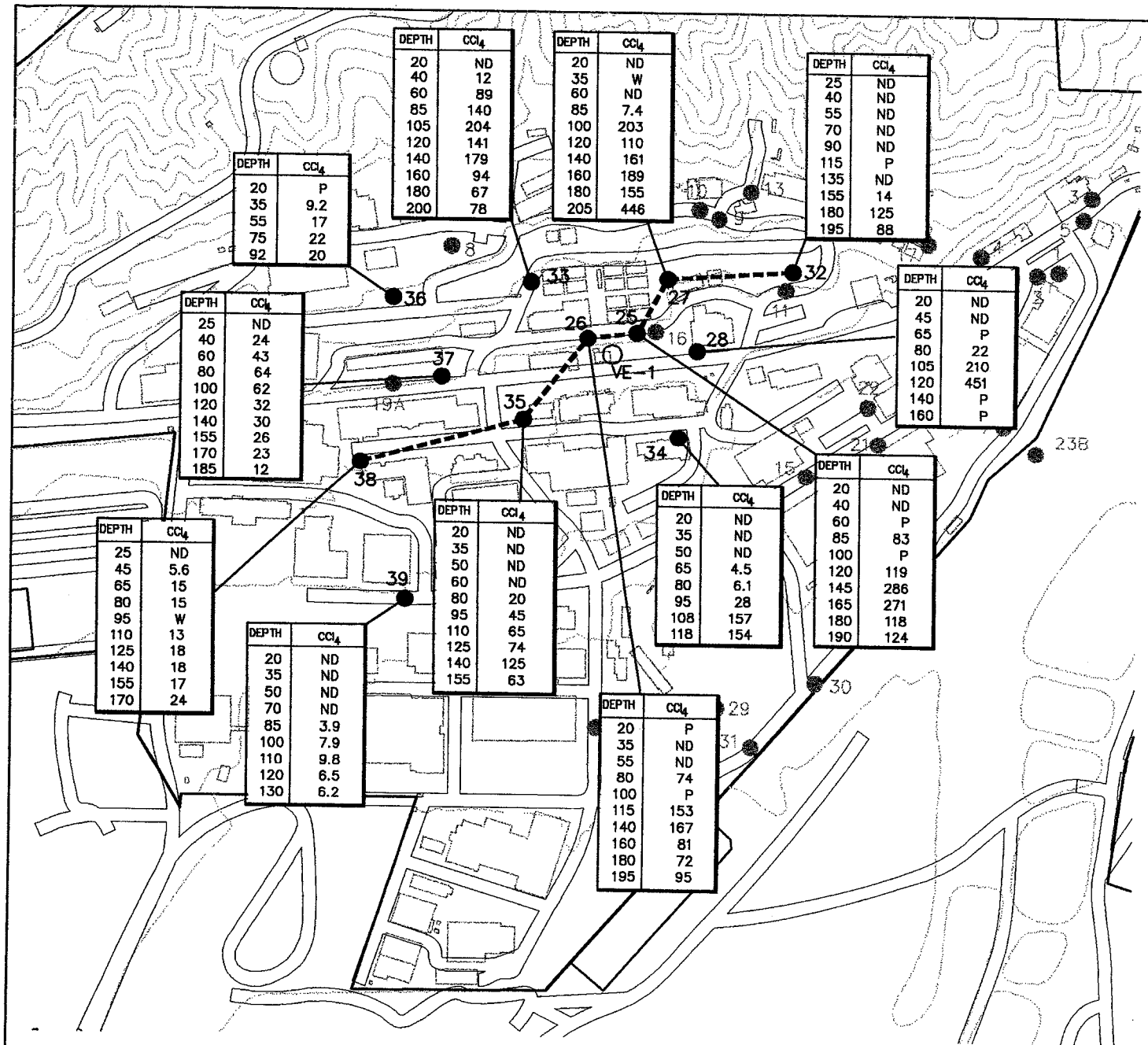

Explanation

- ● 39 — Soil Vapor Wells Sampled
- ○ VE-1 — Vapor Extraction Well
- CCl_4 — Carbon Tetrachloride
- ND — Non-Detect @ Laboratory Detection Limit of 1.0 µg/L-Vapor
- P — Sample Port Plugged: No Sample Collected
- W — Sample Port Waterlogged; No Sample Collected
- Line of Cross Section

400 200 0 400

SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.

NOTE:

Concentrations in µg/L-Vapor

FIGURE 4-1

CARBON TETRACHLORIDE CONCENTRATIONS AT DEPTH

OCTOBER 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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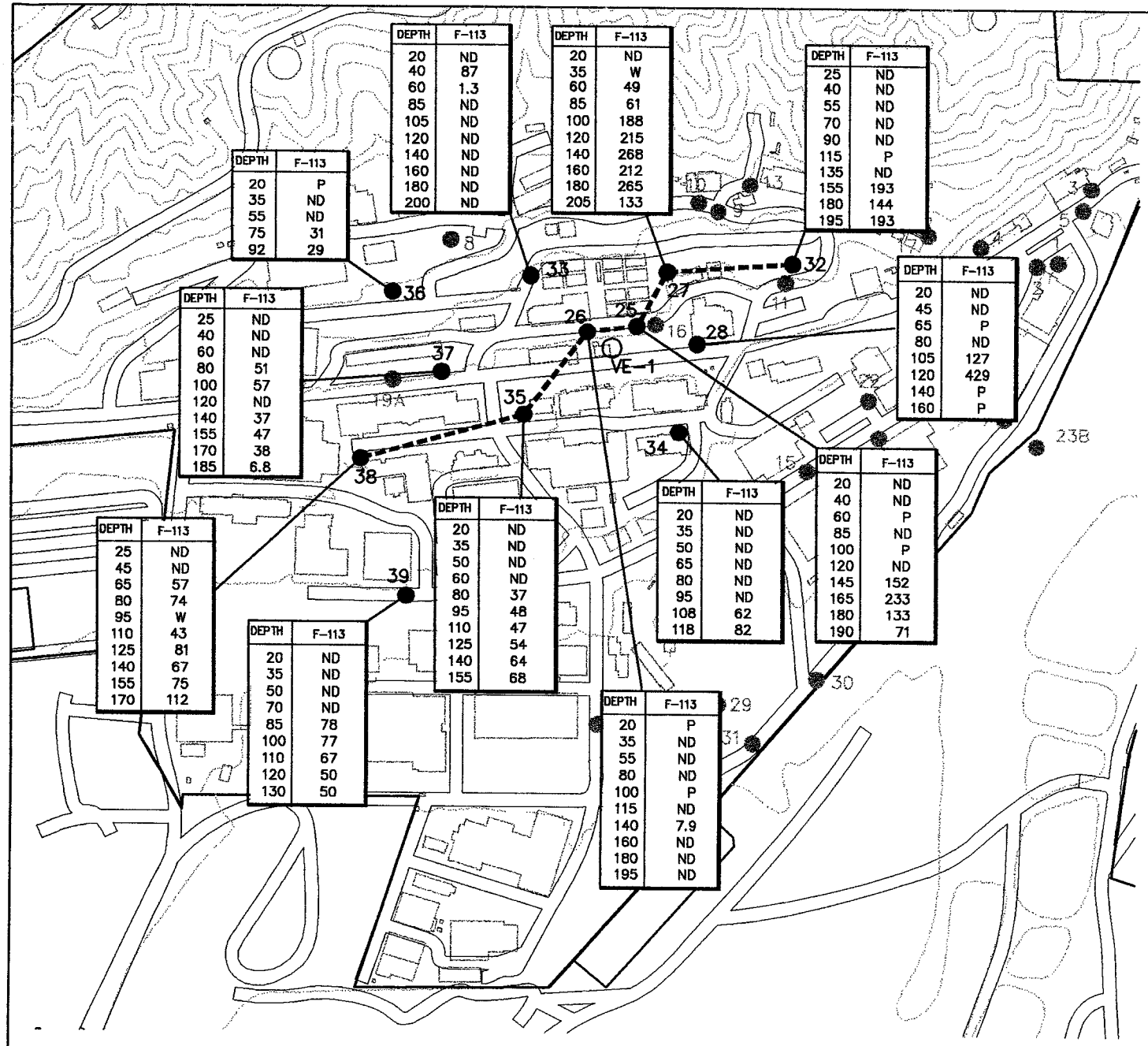

Explanation

● 39	Soil Vapor Wells Sampled
○ VE-1	Vapor Extraction Well
F-113	Freon 113
ND	Non-Detect @ Laboratory Detection Limit of 1.0 μg/L-Vapor
P	Sample Port Plugged: No Sample Collected
W	Sample Port Waterlogged; No Sample Collected
———	Line of Cross Section

400 200 0 400

SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.

NOTE:

Concentrations in μg/L-Vapor

FIGURE 4-2

FREON 113 CONCENTRATIONS AT DEPTH

OCTOBER 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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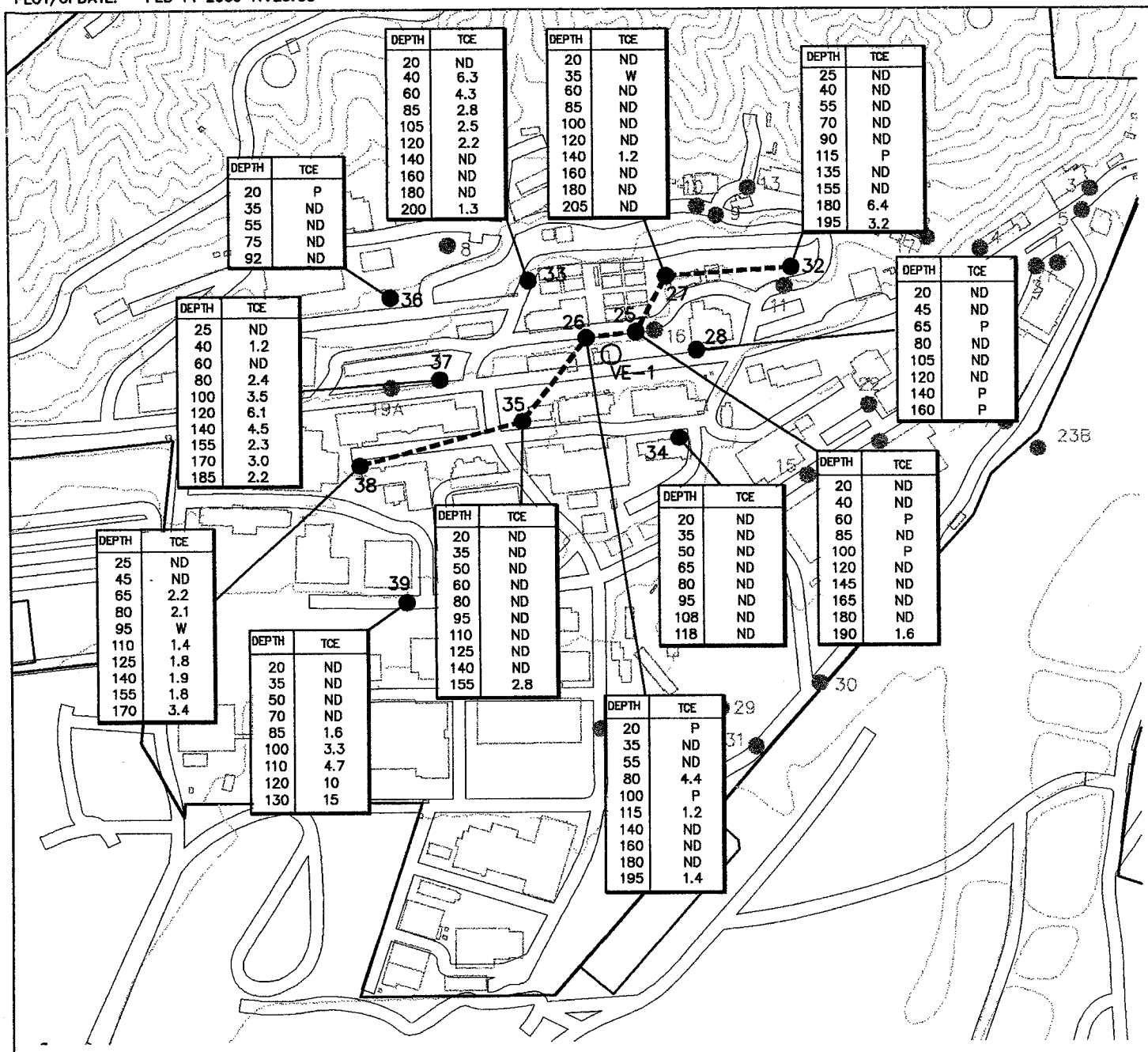

Explanation

● 39	Soil Vapor Wells Sampled
○ VE-1	Vapor Extraction Well
TCE	Trichloroethene
ND	Non-Detect @ Laboratory Detection Limit of 1.0 μg/L-Vapor
P	Sample Port Plugged: No Sample Collected
W	Sample Port Waterlogged; No Sample Collected
———	Line of Cross Section

400 200 0 400

SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.

NOTE:

Concentrations in μg/L-Vapor

FIGURE 4-3

TRICHLOROETHENE CONCENTRATIONS AT DEPTH

OCTOBER 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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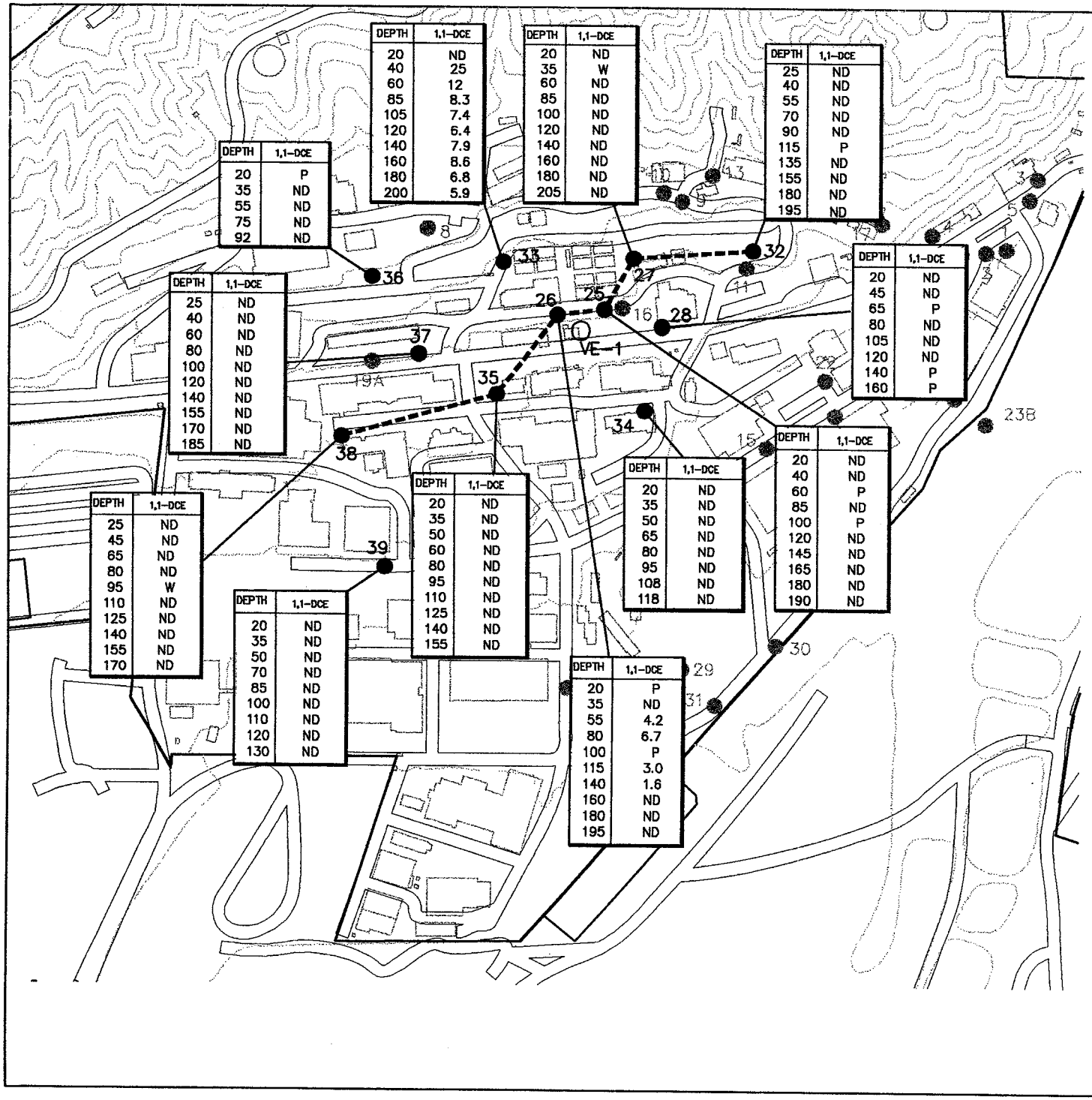

Explanation

● 39	Soil Vapor Wells Sampled
○ VE-1	Vapor Extraction Well
1,1-DCE	1,1-Dichloroethene
ND	Non-Detect @ Laboratory Detection Limit of 1.0 µg/L-Vapor
P	Sample Port Plugged: No Sample Collected
W	Sample Port Waterlogged; No Sample Collected
———	Line of Cross Section

400 200 0 400

SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map Pasadena, CA 1966, Revised 1988, 1994.

NOTE:

Concentrations in µg/L-Vapor

FIGURE 4-4

1,1-DICHLOROETHENE CONCENTRATIONS AT DEPTH

OCTOBER 1998

Jet Propulsion Laboratory
Pasadena, California

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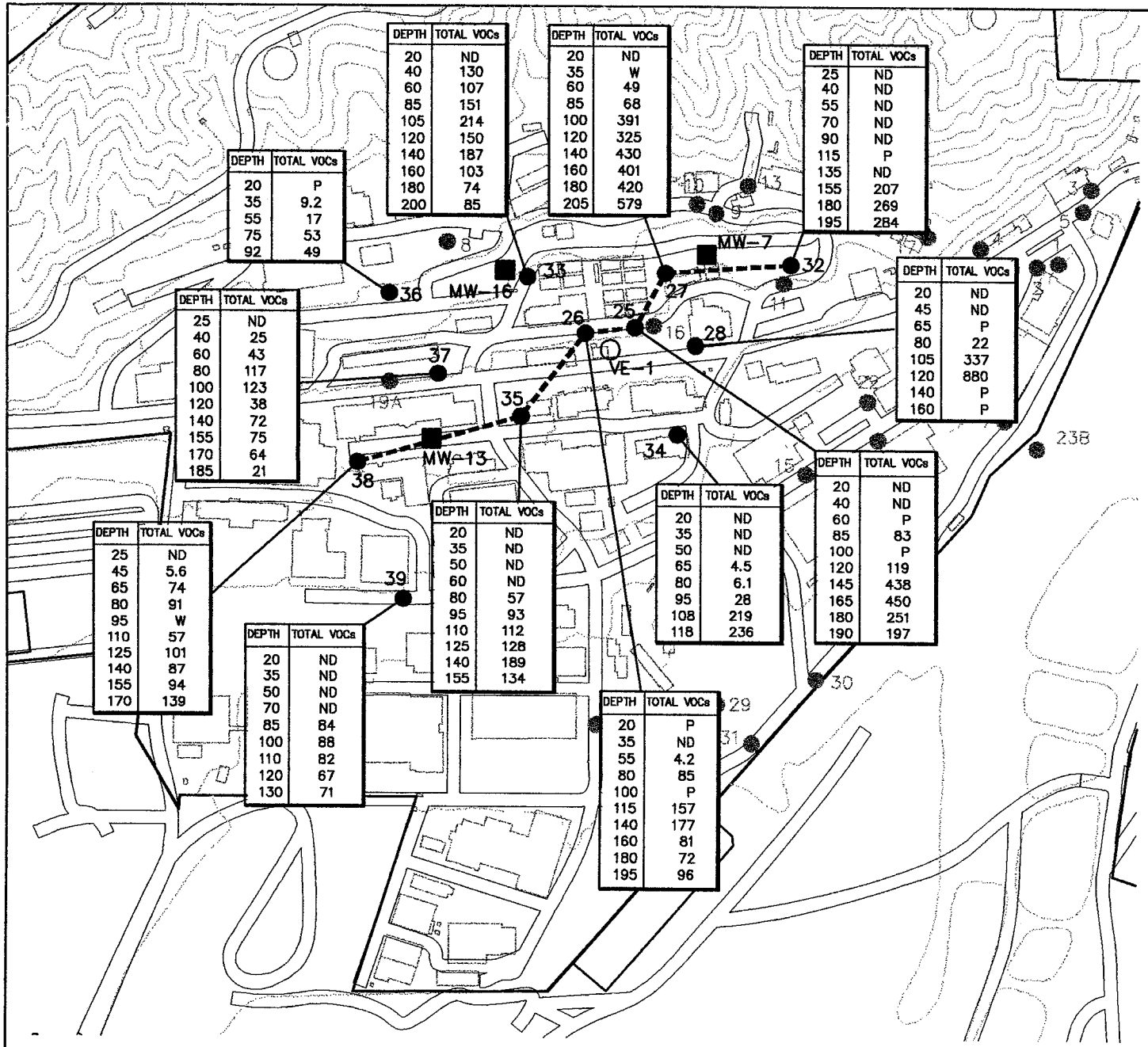


NOTE:

Concentrations in µg/L-Vapor

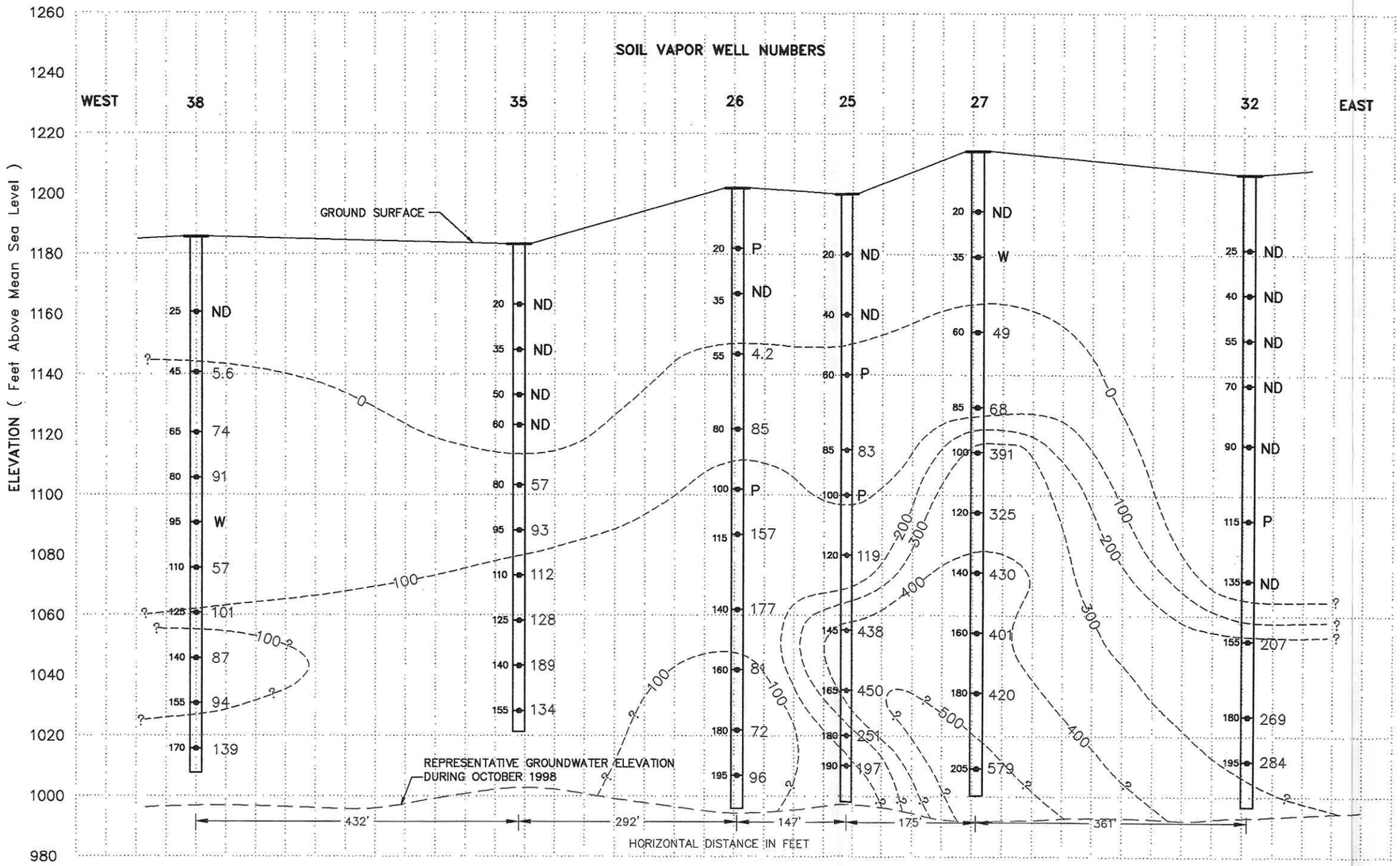
FIGURE 4-5

TOTAL VOC CONCENTRATIONS AT DEPTH

OCTOBER 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION



Explanation

- 25 — Soil Vapor Sample Point and Depth
- 49 — Concentrations of Total VOCs (μg/L–Vapor)
- ND — Non–Detect @ Laboratory Detection Limit of 1.0 μg/L–Vapor
- P — Sample Port Plugged; No Sample Collected
- W — Sample Port Waterlogged; No Sample Collected
- VOCs — Volatile Organic Compounds

Contours:

1. Intervals in 100 μg/L–Vapor.
2. Queried where spatial control is lacking.

Note:

Location of cross–section is shown on Figures 4–1 through 4–5.

HORIZONTAL SCALE: 1"=160'

160 80 0 160

VERTICAL SCALE: 1"=40'

40 20 0 40

FIGURE 4–6

REPRESENTATIVE HORIZONTAL AND VERTICAL DISTRIBUTION OF TOTAL VOCs DURING THE FIRST LONG–TERM SOIL VAPOR SAMPLING EVENT
OCTOBER, 1998

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

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APPENDIX A

SOIL VAPOR DATA EVALUATION REPORT
FIRST LONG-TERM SAMPLING EVENT

SOIL VAPOR DATA EVALUATION REPORT
FIRST LONG-TERM SAMPLING EVENT

I. INTRODUCTION

Summarized in this report is Foster Wheeler Environmental's review of the analytical data package generated from gas chromatographic analyses of soil vapor samples collected during October 1998 from the JPL site, Pasadena, California. These samples represent the initial round of the long-term soil vapor monitoring program. On-site analysis for volatile organic compounds (VOCs) was performed by Transglobal Environmental Geochemistry (TEG) in their CDHS-certified mobile laboratory by chemist Allen Glover with internal data review conducted by Dr. Blayne Hartman. The final data packages were carefully reviewed by Foster Wheeler Environmental's Principal Scientist/Project Chemist who prepared this summary report.

During the period from October 19 to October 28, 1998, 12 Operable Unit 2 (OU-2) deep soil vapor wells (Well Nos. 25 through 28 and Nos. 32 through 39) were sampled. One hundred and eighteen depth-specific vapor samples, including 19 collocated field duplicates, were successfully collected. These samples, along with eight ambient-air field blanks were immediately analyzed for a predetermined list of target VOCs. The time between sample collection and analysis was only a few minutes.

Listed in the attached Table 1 is a summary of the laboratory results for all samples analyzed during this round of long-term soil vapor monitoring. Also included in this table are the corresponding soil vapor well numbers and depths from which each identified vapor sample was collected. This table should provide the reader with sufficient information to determine exactly where each sample was obtained, and also identify the collocated field duplicate samples (DUP).

II. GUIDELINES USED FOR THIS REVIEW

Soil vapor data review was performed to assess and evaluate adherence to the QA/QC and Reporting Requirements for Soil Gas Investigation, protocols established by the California Regional Water Quality Control Board - Los Angeles Region, and general quality control requirements and good laboratory practices contained in the current reference methods for this analysis (8000B & 8021) published in Test Methods for Evaluating Solid Wastes - Physical/Chemical Methods, SW-846, Office of Solid Waste and Emergency Response, USEPA, Washington, DC, 3rd Edition, September 1986 (including Update IIB, January 1995).

There were some key areas that could not be evaluated because no data were supplied, and there are some constraints imposed by the nature of any vapor matrix that limit the types of control samples that can be run. These areas, and their potential impact on data reliability, are discussed later in the report. As had been requested, data tables that summarized the laboratory's external calibration and internal control sample results were included in this package. In addition, the package contained copies of individual chromatograms.

III. CHROMATOGRAPHIC PERFORMANCE

All sample analyses were performed using an external, three-point standard calibration method. For most target analytes, both detectors on the Shimadzu gas chromatograph (GC) were calibrated over a range equivalent to 2 to 100 µg/L analyte in soil vapor. Analytical system performance was checked at the beginning of each analytical day with an "opening standard," a final "closing standard." Usually, a "continuing standard," prepared from a different batch or chemical lot number than the parent standard used to make up the daily opening and closing check standards, was analyzed after the tenth environmental sample run that day. All check standards were made up to the mid-point calibration concentration (equivalent to 20 µg/L vapor). Because calibration of the analytical system was never altered, updated, or otherwise adjusted based on these results, the term "continuing calibration" is misleading and should not be used when referring to these control samples.

During each analytical day, the environmental sample analyses were bracketed by check standards which verified acceptable system performance for the limited number of analytes listed in the QA/QC - Calibration Data Summary Tables. Response factors (RF) calculated from the opening standard results were within ±15 percent of the mean calibration factors calculated from initial calibration results. Closing standards and LCS results were within ±20 percent of initial calibration results. In this package, no data were qualified because of standardization problems or instrumental drift. Percent differences between analyte-specific response factors were always within applicable control limits.

Field blanks of ambient air from inside the field laboratory were analyzed immediately after the opening verification standard and were clean in all cases. No matrix spikes or laboratory replicates were required in these data packages, although some of the samples were reanalyzed at smaller injection volumes so that the instrument response (in terms of area counts) fell within the working calibration range of the GC.

In qualitative chromatographic terms such as peak shape, compound separation, stability of instrumental response, baseline appearance, drift and sensitivity, the quality of the chromatograms in these data packages compared favorably with the general criteria for single laboratory performance as published in the method references.

IV. REQUIRED INSTRUMENT QC

Based on general assessment criteria for GC analysis with non-MS detectors, RWQCB guidelines, and requirements in SW-846 - Method 8021, TEG's data packages were evaluated as follows:

- *Linearity of Initial Calibration Curve*: For each target analyte, the percent relative standard deviation (%RSD) among response factors calculated from the three calibration standards was less than 20 percent, indicative of a linear relationship. In

addition, based on the three-point initial calibration data summary table provided, linear correlation coefficients were greater than 0.995 for all target analytes.

- *Retention Time (RT) Windows*: Calculation of RT windows is evidently not addressed under RWQCB guidelines. Retention time windows appeared stable and consistent. How acceptable ranges for RT windows were established, and the magnitude of temporal variation allowed was not explained in the data package.
- *Establishment and Verification of Calibration Factors*: Based on initial calibration data, RF values were correctly calculated. Verification checks indicated a stable analytical system.

V. MATRIX SPIKE AND LABORATORY CONTROL SAMPLES

The mixed-gas matrix collected from vapor monitoring wells was assumed not significantly to affect method performance in terms of detection limits, precision, and accuracy. No matrix spike data were reported to verify this assumption and no lab replicates were run for internal lab precision assessment. The lack of this type of control data means that the variability and bias of the results attributably solely to the analytical and reporting systems at the laboratory (handling and storage effects are assumed to be negligible) cannot be quantified. However, data on 19 pairs of field duplicates were generated, and although the variability introduced in the process of sample extraction and collection is estimated to be an order of magnitude greater than analytical and reporting variability within the laboratory, some general conclusions about the variability of the data set as a whole can be drawn. For that purpose, the mean relative percent difference (RPD) between individual field duplicate data pairs with detectable concentrations of the four most commonly detected target analytes, along with other statistical parameters, are summarized in the table below.

	STATISTICAL PARAMETERS - Field Duplicates			
	Average RPD	Standard Deviation σ	Variance σ^2	Relative Error $\sigma \div$ RPD
Carbon Tetrachloride	7.4 %	7.2×10^{-2}	5.2×10^{-3}	0.97
Freon 113	9.2 %	7.4×10^{-2}	5.4×10^{-3}	0.80
Trichloroethene	14.6 %	9.2×10^{-2}	8.5×10^{-3}	0.63
1,1-Dichloroethene	5.8 %	3.6×10^{-2}	1.3×10^{-3}	0.62

Average RPDs and other statistical parameters compare favorably with the statistical data calculated from previous soil vapor analyses as reported by TEG. With average RPDs consistently below 15 percent, there is good general agreement between duplicate pairs and good consistency between sampling events. This suggests that a reproducibly consistent field sampling procedure is being properly implemented. With 62 to 97 percent relative error, variability within the duplicate data set is not considered excessive for this type of field sampling. It is suspected that this variability is probably not introduced by the laboratory's analytical system, but by the

field collection technique which varies the amount of vapor purged from a well as a function of sampling depth, and by interactions between the inside surfaces of the sampling apparatus, entrained moisture, and the vapor phase target analytes.

VI. SURROGATE RECOVERIES

An essential requirement of the GC method is that each laboratory calculate in-house performance criteria for evaluating recovery of surrogate compounds. In this case, 1,4-difluorobenzene, chlorobenzene, and 4-bromofluorobenzene were used as surrogates. However, the laboratory did not present any historical performance data with which to establish acceptable in-house surrogate recovery limits. Upper and lower warning and control limit calculations should be completed and included in future data packages. Lacking such data, a range of 70 to 130 percent was applied in accordance with RWQCB guidance. This has been the standard by which previous soil data packages were judged. The current data package satisfied this criterion by a wide margin. Surrogate recoveries fell more typically within a recovery range of 85 to 115 percent.

VII. PERFORMANCE CRITERIA

The detection limit was reported at 1 µg/L-vapor for all 25 target compounds. Data to support and confirm this limit was not provided.

VIII. SUMMARY OF FINDINGS AND RECOMMENDATIONS

A. The following general comments are offered relative to these data packages:

1. It is requested that all future data reporting packages include a copy of the raw GC data from the initial three-point instrument calibration curve(s). Although the published SW-846 method calls for a minimum of five calibration points, the RWQCB protocols allow for this modification to the standard method.

2. Calibration of all target analytes for a particular detector should be performed together, simultaneously, or over the same time period (i.e., calibration of all Hall detector analytes should be performed on the same day under the same chromatographic conditions). In this case for example, Freon 113 (one of the Hall detector analytes) was initially calibrated on October 7, 1998, while another calibration curve generated on October 18, 1998, was used for quantifying chloromethane and several other target compounds that are also Hall detector analytes.

3. The lab should establish and monitor trends in their own specific control limits for surrogate recoveries.

4. System blanks should occasionally be run immediately after samples with high analyte concentrations (e.g., greater than 200 µg/L) to demonstrate that no analyte carry-over is occurring and the system is free of false positive signals.

5. "QA/QC Calibration Data" summary tables must include all organic compounds that have been detected on site. Carbon tetrachloride and chloroform should be added to the lab's standard mix for preparing calibration verification and QC check standards.

B. The following data qualifications should be made when reporting these results:

Based upon a review of the initial calibration summary from data generated on October 7, 1998, and October 18, 1998, it appears as though detectable analyte concentrations were reported for some samples in which the uncorrected result was greater than 150 percent of the highest calibration standard (100 µg/L in most cases). This situation occurred for 13 soil vapor results. Any analyte whose on-column concentration exceeded the highest calibration standard by more than 50 percent, should have been reanalyzed using a smaller aliquot so that the raw instrumental result fell within the working calibration range (typically between 1 and 150 µg/L). This was not done consistently. The lab should not report extrapolated data results without qualification. Therefore, the following results should be qualified "J" to indicate an estimated value:

Carbon Tetrachloride	VPSV-527-145, VPSV-529-165, VPSV-536-115, VPSV-537-140, VPSV-545,100, VPSV-551-205, VPSV-557-105, VPSV-560-140, VPSV-568-105, VPSV-569-120, VPSV-570-120, VPSV-590-108, VPSV-591-118.
Freon 113	VPSV-527-145, VPSV-529-165, VPSV-545-100, VPSV-569-120, VPSV-570-120, VPSV-604-155, VPSV-607-195.

There was one instance in which a sample result was over the working calibration range, but the corresponding field duplicate injection volume had been reduced so that the duplicate result fell within the calibration range. These results agreed to within 7 percent RPD. Therefore, in this case, the original result was allowed to stand unqualified.

In general, there was excellent qualitative agreement in the patterns of groups of compounds (or absence thereof) between field duplicate pairs. When one sample was clean, the other showed no detectable contamination. When target contaminants were detected, identical patterns of compounds were seen in both samples. Strong agreement between patterns indicates a high degree of precision in the identification of specific target analytes by the laboratory and also demonstrates that field sampling procedures, equipment design, and materials of construction are not introducing significant bias.

TABLE 1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
25	20	10/19/98	VPSV-523	ND	ND	ND	ND	ND
25	40	10/19/98	VPSV-524	ND	ND	ND	ND	ND
25	60	NS	NS	P	P	P	P	P
25	85	10/19/98	VPSV-525	83	ND	ND	ND	ND
25	100	NS	NS	P	P	P	P	P
25	120	10/19/98	VPSV-526	119	ND	ND	ND	ND
25	145	10/19/98	VPSV-527	286 J	152 J	ND	ND	ND
25	145	10/19/98	VPSV-528(DUP)	285	147	ND	ND	ND
25	165	10/19/98	VPSV-529	217 J	233 J	ND	ND	ND
25	180	10/19/98	VPSV-530	118	133	ND	ND	ND
25	190	10/19/98	VPSV-531	124	71	1.6	ND	ND
26	20	NS	NS	P	P	P	P	P
26	35	10/19/98	VPSV-532	ND	ND	ND	ND	ND
26	55	10/19/98	VPSV-533	ND	ND	ND	3.9	ND
26	55	10/19/98	VPSV-534(DUP)	ND	ND	ND	4.2	ND
26	80	10/19/98	VPSV-535	74	ND	4.4	6.7	ND
26	100	NS	NS	P	P	P	P	P
26	115	10/19/98	VPSV-536	153 J	ND	1.2	3.0	ND
26	140	10/19/98	VPSV-537	167 J	7.9	ND	1.6	ND
26	160	10/20/98	VPSV-538	81	ND	ND	ND	ND
26	180	10/20/98	VPSV-539	72	ND	ND	ND	ND
26	195	10/20/98	VPSV-540	83	ND	1.4	ND	ND
26	195	10/20/98	VPSV-541(DUP)	95	ND	1.3	ND	ND
27	20	10/20/98	VPSV-542	ND	ND	ND	ND	ND
27	35	NS	NS	W	W	W	W	W
27	60	10/20/98	VPSV-543	ND	49	ND	ND	ND
27	85	10/20/98	VPSV-544	7.4	61	ND	ND	ND
27	100	10/20/98	VPSV-545	193 J	188 J	ND	ND	ND
27	100	10/20/98	VPSV-546(DUP)	203	169	ND	ND	ND
27	120	10/20/98	VPSV-547	110	215	ND	ND	ND

TABLE 1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
27	140	10/20/98	VPSV-548	161	268	1.2	ND	ND
27	160	10/20/98	VPSV-549	189	212	ND	ND	ND
27	180	10/20/98	VPSV-550	155	265	ND	ND	ND
27	205	10/20/98	VPSV-551	413 J	133	ND	ND	ND
27	205	10/20/98	VPSV-552(DUP)	446	130	ND	ND	ND
28	20	10/21/98	VPSV-565	ND	ND	ND	ND	ND
28	45	10/21/98	VPSV-566	ND	ND	ND	ND	ND
28	65	NS	NS	P	P	P	P	P
28	80	10/21/98	VPSV-567	22	ND	ND	ND	ND
28	105	10/21/98	VPSV-568	210 J	127	ND	ND	ND
28	120	10/21/98	VPSV-569	438 J	429 J	ND	ND	ND
28	120	10/21/98	VPSV-570(DUP)	451 J	403 J	ND	ND	ND
28	140	NS	NS	P	P	P	P	P
28	160	NS	NS	P	P	P	P	P
32	25	10/26/98	VPSV-597	ND	ND	ND	ND	ND
32	40	10/26/98	VPSV-598	ND	ND	ND	ND	ND
32	55	10/26/98	VPSV-599	ND	ND	ND	ND	ND
32	55	10/26/98	VPSV-600(DUP)	ND	ND	ND	ND	ND
32	70	10/26/98	VPSV-601	ND	ND	ND	ND	ND
32	90	10/26/98	VPSV-602	ND	ND	ND	ND	ND
32	115	NS	NS	P	P	P	P	P
32	135	10/26/98	VPSV-603	ND	ND	ND	ND	ND
32	155	10/26/98	VPSV-604	14	193 J	ND	ND	ND
32	180	10/26/98	VPSV-605	110	144	4.9	ND	ND
32	180	10/26/98	VPSV-606(DUP)	125	138	6.4	ND	ND
32	195	10/26/98	VPSV-607	88	193 J	3.2	ND	ND
33	20	10/21/98	VPSV-553	ND	ND	ND	ND	ND
33	40	10/21/98	VPSV-554	12	87	6.3	25	ND
33	60	10/21/98	VPSV-555	89	1.3	4.3	12	ND
33	85	10/21/98	VPSV-556	140	ND	2.8	8.3	ND

TABLE 1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
33	105	10/21/98	VPSV-557	191 J	ND	2.4	6.8	ND
33	105	10/21/98	VPSV-558(DUP)	204	ND	2.5	7.4	ND
33	120	10/21/98	VPSV-559	141	ND	2.2	6.4	ND
33	140	10/21/98	VPSV-560	179 J	ND	ND	7.9	ND
33	160	10/21/98	VPSV-561	94	ND	ND	8.6	ND
33	180	10/21/98	VPSV-562	67	ND	ND	6.8	ND
33	200	10/21/98	VPSV-563	78	ND	1.3	5.9	ND
33	200	10/21/98	VPSV-564(DUP)	77	ND	1.1	5.8	ND
34	20	10/22/98	VPSV-583	ND	ND	ND	ND	ND
34	35	10/22/98	VPSV-584	ND	ND	ND	ND	ND
34	50	10/22/98	VPSV-585	ND	ND	ND	ND	ND
34	65	10/22/98	VPSV-586	4.5	ND	ND	ND	ND
34	80	10/22/98	VPSV-587	6.1	ND	ND	ND	ND
34	80	10/22/98	VPSV-588(DUP)	6.0	ND	ND	ND	ND
34	95	10/23/98	VPSV-589	28	ND	ND	ND	ND
34	108	10/23/98	VPSV-590	157 J	62	ND	ND	ND
34	118	10/23/98	VPSV-591	154 J	82	ND	ND	ND
35	20	10/22/98	VPSV-571	ND	ND	ND	ND	ND
35	35	10/22/98	VPSV-572	ND	ND	ND	ND	ND
35	50	10/22/98	VPSV-573	ND	ND	ND	ND	ND
35	60	10/22/98	VPSV-574	ND	ND	ND	ND	ND
35	80	10/22/98	VPSV-575	18	36	ND	ND	ND
35	80	10/22/98	VPSV-576(DUP)	20	37	ND	ND	ND
35	95	10/22/98	VPSV-577	45	48	ND	ND	ND
35	110	10/22/98	VPSV-578	65	47	ND	ND	ND
35	125	10/22/98	VPSV-579	74	54	ND	ND	ND
35	140	10/22/98	VPSV-580	125	64	ND	ND	ND
35	155	10/22/98	VPSV-581	59	61	2.4	ND	ND
35	155	10/22/98	VPSV-582(DUP)	63	68	2.8	ND	ND

TABLE 1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
36	20	NS	NS	P	P	P	P	P
36	35	10/23/98	VPSV-592	9.2	ND	ND	ND	ND
36	55	10/23/98	VPSV-593	17	ND	ND	ND	1.1
36	55	10/23/98	VPSV-594(DUP)	16	ND	ND	ND	1.1
36	75	10/23/98	VPSV-595	22	31	ND	ND	3.8
36	92	10/23/98	VPSV-596	20	29	ND	ND	4.0
37	25	10/26/98	VPSV-608	ND	ND	ND	ND	ND
37	40	10/26/98	VPSV-609	24	ND	1.2	ND	ND
37	60	10/26/98	VPSV-610	43	ND	ND	ND	ND
37	80	10/26/98	VPSV-611	64	51	2.3	ND	ND
37	80	10/26/98	VPSV-612(DUP)	60	48	2.4	ND	ND
37	100	10/26/98	VPSV-613	62	57	3.5	ND	ND
37	120	10/27/98	VPSV-614	32	ND	6.1	ND	ND
37	140	10/27/98	VPSV-615	30	37	4.5	ND	ND
37	155	10/27/98	VPSV-616	26	47	2.3	ND	ND
37	170	10/27/98	VPSV-617	23	38	3.0	ND	ND
37	185	10/27/98	VPSV-618	12	6.5	2.2	ND	ND
37	185	10/27/98	VPSV-619(DUP)	12	6.8	1.7	ND	ND
38	25	10/27/98	VPSV-620	ND	ND	ND	ND	ND
38	45	10/27/98	VPSV-621	5.6	ND	ND	ND	ND
38	65	10/27/98	VPSV-622	15	57	2.2	ND	ND
38	80	10/27/98	VPSV-623	11	74	1.6	ND	ND
38	80	10/27/98	VPSV-624(DUP)	15	56	2.1	ND	ND
38	95	NS	NS	W	W	W	W	W
38	110	10/27/98	VPSV-625	13	43	1.4	ND	ND
38	125	10/27/98	VPSV-626	18	81	1.8	ND	ND
38	140	10/27/98	VPSV-627	18	67	1.9	ND	ND
38	155	10/27/98	VPSV-628	17	75	1.8	ND	ND
38	170	10/27/98	VPSV-629	22	103	3.0	ND	ND
38	170	10/27/98	VPSV-630(DUP)	24	112	3.4	ND	ND

TABLE 1

SUMMARY OF SOIL-VAPOR RESULTS
FIRST LONG-TERM SAMPLING EVENT
(Concentrations in µg/L–vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	1,1-DCE	Chloroform
39	20	10/28/98	VPSV-631	ND	ND	ND	ND	ND
39	35	10/28/98	VPSV-632	ND	ND	ND	ND	ND
39	50	10/28/98	VPSV-633	ND	ND	ND	ND	ND
39	70	10/28/98	VPSV-634	ND	ND	ND	ND	ND
39	85	10/28/98	VPSV-635	3.7	66	1.5	ND	ND
39	85	10/28/98	VPSV-636(DUP)	3.9	78	1.6	ND	ND
39	100	10/28/98	VPSV-637	7.9	77	3.3	ND	ND
39	110	10/28/98	VPSV-638	9.8	67	4.7	ND	ND
39	120	10/28/98	VPSV-639	6.5	50	10	ND	ND
39	130	10/28/98	VPSV-640	6.2	50	15	ND	ND

Notes:

bgs - Below ground surface.
DUP - Duplicate samples.
J - Estimated concentration; result exceeded calibration range.
ND - Not detected.
NS - Not sampled.
P - Sampling port plugged.
W - Sampling port inundated with water.

APPENDIX B

B-1 RESULTS OF SOIL-VAPOR ANALYSES

B-2 CHAIN-OF-CUSTODY FORMS

B-3 INITIAL THREE-POINT CALIBRATION DATA

B-4 DAILY OPENING, CLOSING, AND CONTINUING CALIBRATION VERIFICATION REPORTS

APPENDIX B-1

RESULTS OF SOIL-VAPOR ANALYSES

November 16, 1998

Mr. B.G. Randolph
Foster Wheeler
611 Anton Boulevard
Suite 800
Costa Mesa, CA 92626

SUBJECT: DATA REPORT - JPL - OAK GROVE DRIVE, PASADENA, CA - FOSTER WHEELER PROJECT #1572.0263

TEG Project # 981019W1

Mr. Randolph:

Please find enclosed a data report for the above referenced location. Soil vapor samples were analyzed on-site in TEG's DOHS certified mobile laboratory (CERT #1745).

Project Summary

Soil vapor from 118 points was analyzed for:

- volatile halogenated hydrocarbons by EPA Method 8010
- volatile aromatic hydrocarbons (BTEX) by Modified EPA Method 8020
- 6 extra LCS

The samples were received on-site in appropriate containers with appropriate labels, seals, and chain-of-custody documentation.

Project Narrative

The results for all analyses and required QA/QC analyses are summarized in the enclosed tables. All calibrations, blanks, surrogates, and spike recoveries fulfill quality control criteria. No data qualifiers (flags) apply to any of the reported data.

TEG appreciates the opportunity to provide analytical services to Foster Wheeler on this project. If you have any questions relating to this data or report, please do not hesitate to contact us.

Sincerely,

Blayne Hartman

Dr. Blayne Hartman

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981019W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV523-20	VPSV524-40	VPSV525-85	VPSV526-120	VPSV527-145	PSV528-145 DUP	VPSV529-165
DATE	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98
SAMPLING TIME	8:39	9:00	9:24	9:46	10:12	10:34	10:56	11:20
ANALYSIS TIME	08:39	09:03	09:26	09:48	10:13	10:36	10:59	11:22
SAMPLING DEPTH (feet)	--	20	40	85	120	145	145	165
VOLUME WITHDRAWN (cc)	200	80	160	340	480	580	580	660
VOLUME INJECTED	1	1	1	1	1	1	0.5	1
DILUTION FACTOR	1	1	1	1	1	1	2	1
CARBON TETRACHLORIDE	nd	nd	nd	83	119	286	285	217
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	152	147	233
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	86%	97%	89%	94%	91%	95%	94%	97%
CHLOROBENZENE	94%	106%	99%	104%	101%	106%	105%	107%
4 BROMOFLUORO BENZENE	81%	93%	85%	92%	86%	91%	91%	93%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981019W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV530-180	VPSV531-190	VPSV532-35	VPSV533-55	VPSV534-55 DUP	VPSV535-80	VPSV536-115	VPSV537-140
DATE	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98
SAMPLING TIME	11:42	12:04	12:29	12:51	13:14	13:58	14:25	14:48
ANALYSIS TIME	11:45	12:08	12:31	12:54	13:17	14:03	14:28	14:51
SAMPLING DEPTH (feet)	180	190	35	55	55	80	115	140
VOLUME WITHDRAWN (cc)	720	760	140	220	220	320	460	560
VOLUME INJECTED	0.5	1	1	1	1	1	1	1
DILUTION FACTOR	2	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	118	124	nd	nd	nd	74	153	167
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	3.9	4.2	6.7	3.0	1.6
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	1.6	nd	nd	nd	4.4	1.2	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	133	71	nd	nd	nd	nd	nd	7.9
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	98%	98%	97%	99%	100%	95%	104%	96%
CHLOROBENZENE	109%	108%	107%	110%	111%	105%	115%	107%
4 BROMOFLUORO BENZENE	95%	93%	94%	96%	96%	92%	99%	93%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981019W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV523-20	VPSV523-20	VPSV524-40	VPSV524-40	VPSV525-85	VPSV525-85
DATE	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98
SAMPLING TIME	8:39	8:39	9:00	9:00	9:24	9:24	9;46	9;46
ANALYSIS TIME	8:39	8:39	9:03	9:03	9:26	9:26	9:48	9:48
SAMPLING DEPTH (feet)	--	--	20	20	40	40	85	85
VOLUME WITHDRAWN (cc)	200	200	80	80	160	160	340	340
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	9.4	9,196
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	10.0	185	9.9	209	9.9	193	9.9	202
CHLOROBENZENE	16.2	464	16.2	523	16.2	485	16.3	512
4 BROMOFLUORO BENZENE	19.2	668	19.2	767	19.3	700	19.3	760

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981019W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV526-120	VPSV526-120	VPSV527-145	VPSV527-145	VPSV528-145 DUP	VPSV528-145 DUP	VPSV529-165	VPSV529-165
DATE	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98
SAMPLING TIME	10:12	10:12	10:34	10:34	10:56	10:56	11:20	11:20
ANALYSIS TIME	10:13	10:13	10:36	10:36	10:59	10:59	11:22	11:22
SAMPLING DEPTH (feet)	120	120	145	145	145	145	165	165
VOLUME WITHDRAWN (cc)	480	480	580	580	580	580	660	660
VOLUME INJECTED	1	1	1	1	0.5	0.5	1	1
DILUTION FACTOR	1	1	1	1	2	2	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.5	13,139	9.4	31,543	9.4	31,397	9.4	23,964
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	5.4	2,462	5.4	2,380	5.3	3,769
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	10.0	196	10.0	206	9.9	204	10.0	209
CHLOROBENZENE	16.3	495	16.3	521	16.2	515	16.2	528
4 BROMOFLUORO BENZENE	19.3	710	19.3	751	19.3	750	19.2	768

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981019W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV530-180	VPSV530-180	VPSV531-190	VPSV531-190	VPSV532-35	VPSV532-35	VPSV533-55	VPSV533-55
DATE	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98
SAMPLING TIME	11:42	11:42	12:04	12:04	12:29	12:29	12:51	12:51
ANALYSIS TIME	11:45	11:45	12:08	12:08	12:31	12:31	12:54	12:54
SAMPLING DEPTH (feet)	180	180	190	190	35	35	55	55
VOLUME WITHDRAWN (cc)	720	720	760	760	140	140	220	220
VOLUME INJECTED	0.5	0.5	1	1	1	1	1	1
DILUTION FACTOR	2	2	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	12,963	9.4	13,658	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	5.4	36
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	10.6	26	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.4	2,157	5.3	1,151	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	9.9	212	10.0	211	9.9	209	9.9	213
CHLOROBENZENE	16.2	538	16.2	529	16.2	525	16.2	539
4 BROMOFLUORO BENZENE	19.2	779	19.2	767	19.2	770	19.2	786

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981019W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV534-55 DUP	VPSV534-55 DUP	VPSV535-80	VPSV535-80	VPSV536-115	VPSV536-115	VPSV537-140	VPSV537-140
DATE	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98	10/19/98
SAMPLING TIME	13:14	13:14	13:58	13:58	14:25	14:25	14:48	14:48
ANALYSIS TIME	13:17	13:17	14:03	14:03	14:28	14:28	14:51	14:51
SAMPLING DEPTH (feet)	55	55	80	80	115	115	140	140
VOLUME WITHDRAWN (cc)	220	220	320	320	460	460	560	560
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	9.4	8,181	9.4	16,824	9.4	18,388
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	5.5	39	5.5	62	5.5	28	5.4	15
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	10.6	70	10.6	20	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	5.4	128
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	10.0	216	10.0	206	10.0	224	10.0	207
CHLOROBENZENE	16.2	548	16.2	518	16.3	564	16.2	525
4 BROMOFLUORO BENZENE	19.2	792	19.3	754	19.3	815	19.3	761

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981020W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV538-160	VPSV539-180	VPSV540-195	VPSV541-195 DUP	VPSV542-20	VPSV543-60	VPSV544-85
DATE	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98
SAMPLING TIME	05:10	07:53	08:19	08:42	09:05	09:28	09:50	10:12
ANALYSIS TIME	05:12	07:55	08:21	08:44	09:07	09:29	09:52	10:14
SAMPLING DEPTH (feet)	--	160	180	195	195	20	60	85
VOLUME WITHDRAWN (cc)	200	640	720	780	780	80	240	340
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	81	72	83	95	nd	nd	7.4
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	1.4	1.3	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	49	61
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	86%	102%	94%	93%	87%	87%	87%	96%
CHLOROBENZENE	94%	113%	101%	103%	97%	98%	97%	107%
4 BROMOFLUORO BENZENE	81%	95%	87%	88%	84%	86%	83%	92%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981020W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV545-100	VPSV546-100 DUP	VPSV547-120	VPSV548-140	VPSV549-160	VPSV550-180	VPSV551-205	VPSV552-205 DUP
DATE	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98
SAMPLING TIME	10:35	10:56	11:20	11:44	12:06	12:50	13:16	13:38
ANALYSIS TIME	10:37	11:00	11:22	11:45	12:08	12:53	13:17	13:40
SAMPLING DEPTH (feet)	100	100	120	140	160	180	205	205
VOLUME WITHDRAWN (cc)	400	400	480	560	640	720	820	820
VOLUME INJECTED	1	0.5	0.5	0.5	0.2	0.5	0.5	0.2
DILUTION FACTOR	1	2	2	2	5	2	2	5
CARBON TETRACHLORIDE	193	203	110	161	189	155	413	446
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	1.2	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	188	169	215	268	212	265	133	130
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	99%	97%	95%	96%	93%	90%	88%	86%
CHLOROBENZENE	111%	108%	106%	103%	104%	101%	100%	95%
4 BROMOFLUORO BENZENE	95%	92%	91%	89%	90%	86%	86%	83%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981020W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV538-160	VPSV538-160	VPSV539-180	VPSV539-180	VPSV540-195	VPSV540-195
DATE	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98
SAMPLING TIME	5:10	5:10	7:53	7:53	8:19	8:19	8:42	8:42
ANALYSIS TIME	5:12	5:12	7:55	7:55	8:21	8:21	8:44	8:44
SAMPLING DEPTH (feet)	--	--	160	160	180	180	195	195
VOLUME WITHDRAWN (cc)	200	200	640	640	720	720	780	780
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	9.5	8,913	9.5	7,889	9.4	9,115
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	10.6	23
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	9.9	186	10.1	220	10.1	203	9.9	200
CHLOROBENZENE	16.2	464	16.4	556	16.3	499	16.2	508
4 BROMOFLUORO BENZENE	19.3	669	19.4	777	19.3	717	19.2	726

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981020W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV541-195 DUP	VPSV541-195 DUP	VPSV542-20	VPSV542-20	VPSV543-60	VPSV543-60	VPSV544-85	VPSV544-85
DATE	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98
SAMPLING TIME	9:05	9:05	9:28	9:28	9:50	9:50	10:12	10:12
ANALYSIS TIME	9:07	9:07	9:29	9:29	9:52	9:52	10:14	10:14
SAMPLING DEPTH (feet)	195	195	20	20	60	60	85	85
VOLUME WITHDRAWN (cc)	780	780	80	80	240	240	340	340
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	10,480	nd	nd	nd	nd	9.4	816
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.6	21	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	5.3	795	5.3	982
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	9.9	188	9.9	188	9.9	187	9.9	208
CHLOROBENZENE	16.2	479	16.2	481	16.2	479	16.3	527
4 BROMOFLUORO BENZENE	19.2	694	19.2	709	19.3	686	19.3	757

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981020W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV545-100	VPSV545-100	VPSV546-100 DUP	VPSV546-100 DUP	VPSV547-120	VPSV547-120	VPSV548-140	VPSV548-140
DATE	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98
SAMPLING TIME	10:35	10:35	10:56	10:56	11:20	11:20	11:44	11:44
ANALYSIS TIME	10:37	10:37	11:00	11:00	11:22	11:22	11:45	11:45
SAMPLING DEPTH (feet)	100	100	100	100	120	120	140	140
VOLUME WITHDRAWN (cc)	400	400	400	400	480	480	560	560
VOLUME INJECTED	1	1	0.5	0.5	0.5	0.5	0.5	0.5
DILUTION FACTOR	1	1	2	2	2	2	2	2
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	21,286	9.4	22,371	9.4	12,080	9.4	17,728
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	10.6	19
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.2	3,044	5.3	2,743	5.3	3,476	5.3	4,347
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	10.0	214	9.9	209	10.0	205	9.9	208
CHLOROBENZENE	16.3	546	16.3	529	16.2	523	16.3	508
4 BROMOFLUORO BENZENE	19.3	781	19.3	757	19.3	750	19.3	734

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981020W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV549-160	VPSV549-160	VPSV550-180	VPSV550-180	VPSV551-205	VPSV551-205	VPSV552-205 DUP	VPSV552-205 DUP
DATE	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98	10/20/98
SAMPLING TIME	12:06	12:06	12:50	12:50	13:16	13:16	13:38	13:38
ANALYSIS TIME	12:08	12:08	12:53	12:53	13:17	13:17	13:40	13:40
SAMPLING DEPTH (feet)	160	160	180	180	205	205	205	205
VOLUME WITHDRAWN (cc)	640	640	720	720	820	820	820	820
VOLUME INJECTED	0.2	0.2	0.5	0.5	0.5	0.5	0.2	0.2
DILUTION FACTOR	5	5	2	2	2	2	5	5
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	20,871	9.4	17,150	9.4	45,531	9.4	49,195
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.3	3,441	5.3	4,291	5.3	2,162	5.3	2,104
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	9.9	201	9.9	194	9.9	189	9.9	185
CHLOROBENZENE	16.2	510	16.2	497	16.2	490	16.2	467
4 BROMOFLUORO BENZENE	19.3	737	19.3	706	19.3	708	19.3	681

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV553-20	VPSV554-40	VPSV555-60	VPSV556-85	VPSV557-105	VPSV558-105 DUP
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	5:15	7:29	7:50	8:12	8:34	8:57	9:18
ANALYSIS TIME	05:18	07:30	07:52	08:14	08:36	8;58	09:21
SAMPLING DEPTH (feet)	--	20	40	60	85	105	105
VOLUME WITHDRAWN (cc)	200	80	160	240	340	420	420
VOLUME INJECTED	1	1	1	1	1	1	0.5
DILUTION FACTOR	1	1	1	1	1	1	2
CARBON TETRACHLORIDE	nd	nd	12	89	140	191	204
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	25	12	8.3	6.8	7.4
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	6.3	4.3	2.8	2.4	2.5
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	87	1.3	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	93%	112%	96%	96%	91%	104%	107%
CHLOROBENZENE	104%	105%	107%	112%	102%	115%	119%
4 BROMOFLUORO BENZENE	88%	95%	95%	96%	88%	99%	105%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV559-120	VPSV560-140	VPSV561-160	VPSV562-180	VPSV563-200	VPSV564-200 DUP	VPSV565-20
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	9:41	10:03	10:25	10:47	11:10	11:32	12:20
ANALYSIS TIME	09:42	10:05	10:27	10:49	11:11	11:33	12:23
SAMPLING DEPTH (feet)	120	140	160	180	200	200	20
VOLUME WITHDRAWN (cc)	480	560	640	720	800	800	80
VOLUME INJECTED	0.5	1	1	1	1	1	1
DILUTION FACTOR	2	1	1	1	1	1	1
CARBON TETRACHLORIDE	141	179	94	67	78	77	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	6.4	7.9	8.6	6.8	5.9	5.8	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	2.2	nd	nd	nd	1.3	1.1	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4 DIFLUORO BENZENE	96%	96%	96%	100%	100%	97%	92%
CHLOROBENZENE	107%	107%	106%	111%	108%	109%	103%
4 BROMOFLUORO BENZENE	93%	92%	92%	96%	96%	93%	88%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV566-45	VPSV567-80	VPSV568-105	VPSV569-120	VPSV570-120 DUP
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	12:42	13:05	13:27	13:49	14:12
ANALYSIS TIME	12:45	13:08	13:30	13:52	14:14
SAMPLING DEPTH (feet)	45	80	105	120	120
VOLUME WITHDRAWN (cc)	180	320	420	480	480
VOLUME INJECTED	1	1	1	0.5	0.5
DILUTION FACTOR	1	1	1	2	2
CARBON TETRACHLORIDE	nd	22	210	438	451
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	127	429	403
BENZENE	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd
SURROGATES					
1,4 DIFLUORO BENZENE	93%	96%	92%	93%	98%
CHLOROBENZENE	104%	108%	103%	104%	110%
4 BROMOFLUORO BENZENE	88%	94%	88%	88%	94%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

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GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV553-20	VPSV553-20	VPSV554-40	VPSV554-40	VPSV555-60	VPSV555-60
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	5:15	5:15	7:29	7:29	7:50	7:50	8:12	8:12
ANALYSIS TIME	5:18	5:18	7:30	7:30	7:52	7:52	8:14	8:14
SAMPLING DEPTH (feet)	--	--	20	20	40	40	60	60
VOLUME WITHDRAWN (cc)	200	200	80	80	160	160	240	240
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	9.2	1,343	9.2	9,870
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	5.3	229	5.3	109
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	10.4	102	10.4	68
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	5.4	1,412	5.2	20
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	9.9	201	9.8	242	9.8	207	9.7	207
CHLOROBENZENE	16.3	513	16.0	518	16.0	528	16.2	550
4 BROMOFLUORO BENZENE	19.3	721	19.0	777	19.0	778	19.3	791

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV556-85	VPSV556-85	VPSV557-105	VPSV557-105	VPSV558-105 DUP	VPSV558-105 DUP
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	8:34	8:34	8:57	8:57	9:18	9:18
ANALYSIS TIME	8:36	8:36	8:58	8:58	9:21	9:21
SAMPLING DEPTH (feet)	85	85	105	105	105	105
VOLUME WITHDRAWN (cc)	340	340	420	420	420	420
VOLUME INJECTED	1	1	1	1	0.5	0.5
DILUTION FACTOR	1	1	1	1	2	2
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	15,415	9.3	21,050	9.4	22,454
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	5.4	77	5.4	64	5.4	69
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.6	45	10.5	38	10.6	40
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	197	9.9	224	9.9	231
CHLOROBENZENE	16.2	500	16.2	568	16.3	587
4 BROMOFLUORO BENZENE	19.3	723	19.3	813	19.3	859

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV559-120	VPSV559-120	VPSV560-140	VPSV560-140	VPSV561-160	VPSV561-160
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	9:41	9:41	10:03	10:03	10:25	10:25
ANALYSIS TIME	9:42	9:42	10:05	10:05	10:27	10:27
SAMPLING DEPTH (feet)	120	120	140	140	160	160
VOLUME WITHDRAWN (cc)	480	480	560	560	640	640
VOLUME INJECTED	0.5	0.5	1	1	1	1
DILUTION FACTOR	2	2	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	15,503	9.3	19,730	9.3	10,342
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	5.3	60	5.4	74	5.4	80
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.5	35	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	207	9.9	207	9.9	207
CHLOROBENZENE	16.2	527	16.2	524	16.2	523
4 BROMOFLUORO BENZENE	19.2	761	19.2	757	19.2	757

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV562-180	VPSV562-180	VPSV563-200	VPSV563-200	VPSV564-200 DUP	VPSV564-200 DUP
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	10:47	10:47	11:10	11:10	11:32	11:32
ANALYSIS TIME	10:49	10:49	11:11	11:11	11:33	11:33
SAMPLING DEPTH (feet)	180	180	200	200	200	200
VOLUME WITHDRAWN (cc)	720	720	800	800	800	800
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	7,396	9.4	8,620	9.3	8,504
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	5.3	63	5.4	55	5.4	54
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	10.6	21	10.6	18
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	216	9.9	215	9.9	209
CHLOROBENZENE	16.2	547	16.2	530	16.2	534
4 BROMOFLUORO BENZENE	19.2	790	19.3	789	19.3	765

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV565-20	VPSV565-20	VPSV566-45	VPSV566-45	VPSV567-80	VPSV567-80
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	12:20	12:20	12:42	12:42	13:05	13:05
ANALYSIS TIME	12:23	12:23	12:45	12:45	13:08	13:08
SAMPLING DEPTH (feet)	20	20	45	45	80	80
VOLUME WITHDRAWN (cc)	80	80	180	180	320	320
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	9.4	2,446
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	199	9.9	201	9.9	208
CHLOROBENZENE	16.3	506	16.3	510	16.2	532
4 BROMOFLUORO BENZENE	19.3	723	19.3	723	19.3	776

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981021W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV568-105	VPSV568-105	VPSV569-120	VPSV569-120	VPSV570-120 DUP	VPSV570-120 DUP
DATE	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98	10/21/98
SAMPLING TIME	13:27	13:27	13:49	13:49	14:12	14:12
ANALYSIS TIME	13:30	13:30	13:52	13:52	14:14	14:14
SAMPLING DEPTH (feet)	105	105	120	120	120	120
VOLUME WITHDRAWN (cc)	420	420	480	480	480	480
VOLUME INJECTED	1	1	0.5	0.5	0.5	0.5
DILUTION FACTOR	1	1	2	2	2	2
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	23,108	9.3	48,302	9.3	49,794
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.3	2,061	5.2	6,945	5.3	6,522
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	199	9.9	201	9.9	212
CHLOROBENZENE	16.2	506	16.2	510	16.3	539
4 BROMOFLUORO BENZENE	19.3	724	19.3	727	19.3	769

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV571-20	VPSV572-35	VPSV573-50	VPSV574-60
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	5:00	7:27	7:48	8:10	8:33
ANALYSIS TIME	05:01	07:28	07:51	08:12	08:34
SAMPLING DEPTH (feet)	--	20	35	50	60
VOLUME WITHDRAWN (cc)	200	80	140	200	240
VOLUME INJECTED	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd
SURROGATES					
1,4 DIFLUORO BENZENE	95%	107%	99%	99%	97%
CHLOROBENZENE	105%	104%	113%	112%	110%
4 BROMOFLUORO BENZENE	88%	92%	95%	95%	93%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV575-80	VPSV576-80 DUP	VPSV577-95	VPSV578-110	VPSV579-125
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	8:54	9:17	9:38	10:00	10:22
ANALYSIS TIME	08:56	09:18	09:40	10:02	10:24
SAMPLING DEPTH (feet)	80	80	95	110	125
VOLUME WITHDRAWN (cc)	320	320	380	440	500
VOLUME INJECTED	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1
CARBON TETRACHLORIDE	18	20	45	65	74
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	36	37	48	47	54
BENZENE	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd
SURROGATES					
1,4 DIFLUORO BENZENE	100%	95%	91%	95%	91%
CHLOROBENZENE	113%	108%	103%	117%	101%
4 BROMOFLUORO BENZENE	92%	91%	87%	91%	87%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV580-140	VPSV581-155	VPSV582-155 DUP	VPSV583-20	VPSV584-35
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	10:44	11:06	11:28	12:14	12:36
ANALYSIS TIME	10:46	11:09	11:31	12:17	12:39
SAMPLING DEPTH (feet)	140	155	155	20	35
VOLUME WITHDRAWN (cc)	560	620	620	80	140
VOLUME INJECTED	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1
CARBON TETRACHLORIDE	125	59	63	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	2.4	2.8	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	64	61	68	nd	nd
BENZENE	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd
SURROGATES					
1,4 DIFLUORO BENZENE	91%	89%	108%	109%	97%
CHLOROBENZENE	102%	99%	121%	93%	109%
4 BROMOFLUORO BENZENE	86%	85%	104%	79%	94%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV585-50	VPSV586-65	VPSV587-80	VPSV588-80 DUP
DATE	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	12:59	13:21	13:43	14:06
ANALYSIS TIME	13:01	13:23	13:45	14:07
SAMPLING DEPTH (feet)	50	65	80	80
VOLUME WITHDRAWN (cc)	200	260	320	320
VOLUME INJECTED	1	1	1	1
DILUTION FACTOR	1	1	1	1
CARBON TETRACHLORIDE	nd	4.5	6.1	6.0
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd
SURROGATES				
1,4 DIFLUORO BENZENE	113%	95%	89%	96%
CHLOROBENZENE	122%	106%	99%	107%
4 BROMOFLUORO BENZENE	109%	92%	86%	93%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV571-20	VPSV571-20	VPSV572-35	VPSV572-35	VPSV573-50	VPSV573-50
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	5:00	5:00	7:27	7:27	7:48	7:48	8:10	8:10
ANALYSIS TIME	5:01	5:01	7:28	7:28	7:51	7:51	8:12	8:12
SAMPLING DEPTH (feet)	--	--	20	20	35	35	50	50
VOLUME WITHDRAWN (cc)	200	200	80	80	140	140	200	200
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	10.0	205	9.8	231	9.8	213	9.7	213
CHLOROBENZENE	16.3	517	16.1	511	16.1	556	16.1	550
4 BROMOFLUORO BENZENE	19.4	724	19.1	756	19.1	780	19.1	783

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV574-60	VPSV574-60	VPSV575-80	VPSV575-80	VPSV576-80 DUP	VPSV576-80 DUP
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	8:33	8:33	8:54	8:54	9:17	9:17
ANALYSIS TIME	8:34	8:34	8:56	8:56	9:18	9:18
SAMPLING DEPTH (feet)	60	60	80	80	80	80
VOLUME WITHDRAWN (cc)	240	240	320	320	320	320
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	9.3	2,031	9.3	2,244
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113	nd	nd	5.3	577	5.3	594
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	210	9.8	216	9.8	205
CHLOROBENZENE	16.2	540	16.2	555	16.2	529
4 BROMOFLUORO BENZENE	19.2	768	19.2	753	19.2	752

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV577-95	VPSV577-95	VPSV578-110	VPSV578-110	VPSV579-125	VPSV579-125
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	9:38	9:38	10:00	10:00	10:22	10:22
ANALYSIS TIME	9:40	9:40	10:02	10:02	10:24	10:24
SAMPLING DEPTH (feet)	95	95	110	110	125	125
VOLUME WITHDRAWN (cc)	380	380	440	440	500	500
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	4,959	9.3	7,208	9.3	8204
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113	5.3	770	5.3	768	5.4	870
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	197	9.8	205	9.9	197
CHLOROBENZENE	16.2	505	16.2	575	16.2	498
4 BROMOFLUORO BENZENE	19.2	718	19.2	752	19.2	718

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
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TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV580-140	VPSV580-140	VPSV581-155	VPSV581-155	VPSV582-155 DUP	VPSV582-155 DUP
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	10:44	10:44	11:06	11:06	11:28	11:28
ANALYSIS TIME	10:46	10:46	11:09	11:09	11:31	11:31
SAMPLING DEPTH (feet)	140	140	155	155	155	155
VOLUME WITHDRAWN (cc)	560	560	620	620	620	620
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	13,765	9.3	6,530	9.3	6,942
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	10.5	39	10.5	45
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113	5.3	1,041	5.2	989	5.2	1,096
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	197	9.8	192	9.9	233
CHLOROBENZENE	16.2	503	16.2	489	16.2	593
4 BROMOFLUORO BENZENE	19.2	711	19.2	701	19.2	855

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV583-20	VPSV583-20	VPSV584-35	VPSV584-35	VPSV585-50	VPSV585-50
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	12:14	12:14	12:36	12:36	12:59	12:59
ANALYSIS TIME	12:17	12:17	12:39	12:39	13:01	13:01
SAMPLING DEPTH (feet)	20	20	35	35	50	50
VOLUME WITHDRAWN (cc)	80	80	140	140	200	200
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	235	9.8	210	9.9	243
CHLOROBENZENE	16.2	456	16.2	534	16.2	601
4 BROMOFLUORO BENZENE	19.2	652	19.2	772	19.2	898

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV586-65	VPSV586-65	VPSV587-80	VPSV587-80	VPSV588-80 DUP	VPSV588-80 DUP
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	13:21	13:21	13:43	13:43	14:06	14:06
ANALYSIS TIME	13:23	13:23	13:45	13:45	14:07	14:07
SAMPLING DEPTH (feet)	65	65	80	80	80	80
VOLUME WITHDRAWN (cc)	260	260	320	320	320	320
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	493	9.3	668	9.3	662
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	205	9.8	192	9.8	207
CHLOROBENZENE	16.2	523	16.2	487	16.2	527
4 BROMOFLUORO BENZENE	19.2	759	19.2	705	19.2	764

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981022W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV586-65	VPSV586-65	VPSV587-80	VPSV587-80	VPSV588-80 DUP	VPSV588-80 DUP
DATE	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98	10/22/98
SAMPLING TIME	13:21	13:21	13:43	13:43	14:06	14:06
ANALYSIS TIME	13:23	13:23	13:45	13:45	14:07	14:07
SAMPLING DEPTH (feet)	65	65	80	80	80	80
VOLUME WITHDRAWN (cc)	260	260	320	320	320	320
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	493	9.3	668	9.3	662
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	205	9.8	192	9.8	207
CHLOROBENZENE	16.2	523	16.2	487	16.2	527
4 BROMOFLUORO BENZENE	19.2	759	19.2	705	19.2	764

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981023W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV589-95	VPSV590-108	VPSV591-118	VPSV592-35	VPSV593-55	VPSV594-55 DUP	VPSV595-75	VPSV596-92
DATE	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98
SAMPLING TIME	5:45	7:38	8:00	8:21	9:15	9:40	10:01	10:23	10:46
ANALYSIS TIME	05:49	07:39	08:01	08:23	09:16	09:41	10:04	10:26	10:48
SAMPLING DEPTH (feet)	--	95	108	118	35	55	55	75	92
VOLUME WITHDRAWN (cc)	200	380	435	475	140	220	220	300	370
VOLUME INJECTED	1	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	28	157	154	9.2	17	16	22	20
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	1.1	1.1	3.8	4.0
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	62	82	nd	nd	nd	31	29
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES									
1,4 DIFLUORO BENZENE	103%	84%	115%	97%	88%	104%	111%	97%	94%
CHLOROBENZENE	105%	102%	123%	108%	99%	109%	123%	107%	105%
4 BROMOFLUORO BENZENE	89%	86%	100%	90%	84%	94%	108%	95%	93%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981023W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV589-95	VPSV589-95	VPSV590-108	VPSV590-108
DATE	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98
SAMPLING TIME	5:48	5:48	7:38	7:38	8:00	8:00
ANALYSIS TIME	5:49	5:49	7:39	7:39	8:01	8:01
SAMPLING DEPTH (feet)	--	--	95	95	108	108
VOLUME WITHDRAWN (cc)	200	200	380	380	435	435
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	9.4	3,103	9.3	17,346
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	5.3	1,006
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	10.0	223	9.9	182	9.8	249
CHLOROBENZENE	16.4	517	16.2	502	16.2	607
4 BROMOFLUORO BENZENE	19.4	734	19.3	705	19.3	822

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981023W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV591-118	VPSV591-118	VPSV592-35	VPSV592-35	VPSV593-55	VPSV593-55
DATE	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98
SAMPLING TIME	8:21	8:21	9:15	9:15	9:40	9:40
ANALYSIS TIME	8:23	8:23	9:16	9:16	9:41	9:41
SAMPLING DEPTH (feet)	118	118	35	35	55	55
VOLUME WITHDRAWN (cc)	475	475	140	140	220	220
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	16,979	9.3	1,019	9.3	1,865
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	8.4	226
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.3	1,329	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	209	9.8	189	9.9	224
CHLOROBENZENE	16.2	531	16.2	487	16.1	537
4 BROMOFLUORO BENZENE	19.3	743	19.3	692	19.1	771

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981023W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV594-55 DUP	VPSV594-55 DUP	VPSV595-75	VPSV595-75	VPSV596-92	VPSV596-92
DATE	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98	10/23/98
SAMPLING TIME	10:01	10:01	10:23	10:23	10:46	10:46
ANALYSIS TIME	10:04	10:04	10:26	10:26	10:48	10:48
SAMPLING DEPTH (feet)	55	55	75	75	92	92
VOLUME WITHDRAWN (cc)	220	220	300	300	370	370
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	1,814	9.2	2,466	9.2	2,216
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	8.3	215	8.2	776	8.1	801
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	5.3	498	5.3	466
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	240	9.8	209	9.7	204
CHLOROBENZENE	16.1	607	16	528	16	518
4 BROMOFLUORO BENZENE	19	891	19	779	19	761

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981026W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV597-25	VPSV598-40	VPSV599-55	VPSV600-55 DUP	VPSV601-70
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	4:50	7:09	7:30	7:52	8:15	8:37
ANALYSIS TIME	04:53	07:11	07:33	07:55	08:17	08:39
SAMPLING DEPTH (feet)	--	25	40	55	55	70
VOLUME WITHDRAWN (cc)	200	100	160	220	220	280
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	94%	90%	101%	100%	90%	92%
CHLOROBENZENE	105%	101%	112%	111%	101%	103%
4 BROMOFLUORO BENZENE	87%	92%	96%	98%	88%	89%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981026W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV602-90	VPSV603-135	VPSV604-155	VPSV605-180	VPSV606-180 DUP	VPSV607-195
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	8:58	9:22	9:45	10:05	10:28	10:50
ANALYSIS TIME	09:00	09:23	09:46	10:08	10:29	10:52
SAMPLING DEPTH (feet)	90	135	155	180	180	195
VOLUME WITHDRAWN (cc)	360	540	620	720	720	780
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	14	110	125	88
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	4.9	6.4	3.2
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	193	144	138	193
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	100%	98%	97%	96%	83%	99%
CHLOROBENZENE	106%	110%	108%	107%	94%	110%
4 BROMOFLUORO BENZENE	92%	96%	93%	93%	81%	95%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981026W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV608-25	VPSV609-40	VPSV610-60	VPSV611-80	VPSV612-80 DUP	VPSV613-100
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	11:26	12:08	12:32	12:54	13:16	13:38
ANALYSIS TIME	11:27	12:13	12:35	12:57	13:19	13:41
SAMPLING DEPTH (feet)	25	40	60	80	80	100
VOLUME WITHDRAWN (cc)	100	160	240	320	320	400
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	24	43	64	60	62
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	1.2	nd	2.3	2.4	3.5
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	51	48	57
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	90%	99%	99%	100%	98%	102%
CHLOROBENZENE	97%	111%	110%	112%	120%	104%
4 BROMOFLUORO BENZENE	86%	83%	96%	98%	98%	91%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981026W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV597-25	VPSV597-25	VPSV598-40	VPSV598-40
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	4:50	4:50	7:09	7:09	7:30	7:30
ANALYSIS TIME	4:53	4:53	7:11	7:11	7:33	7:33
SAMPLING DEPTH (feet)	--	--	25	25	40	40
VOLUME WITHDRAWN (cc)	200	200	100	100	160	160
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	10.0	204	9.6	195	10.0	219
CHLOROBENZENE	16.4	517	15.9	498	16.2	552
4 BROMOFLUORO BENZENE	19.4	712	19.0	759	19.2	792

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981026W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV599-55	VPSV599-55	VPSV600-55 DUP	VPSV600-55 DUP	VPSV601-70	VPSV601-70
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	7:52	7:52	8:15	8:15	8:37	8:37
ANALYSIS TIME	7:55	7:55	8:17	8:17	8:39	8:39
SAMPLING DEPTH (feet)	55	55	55	55	70	70
VOLUME WITHDRAWN (cc)	220	220	220	220	280	280
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	216	9.9	195	9.8	198
CHLOROBENZENE	16.2	546	16.2	497	16.2	507
4 BROMOFLUORO BENZENE	19.2	805	19.2	720	19.2	732

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
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TEG Project #981026W1
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VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV602-90	VPSV602-90	VPSV603-135	VPSV603-135	VPSV604-155	VPSV604-155
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	8:58	8:58	9:22	9:22	9:45	9:45
ANALYSIS TIME	9:00	9:00	9:23	9:23	9:46	9:46
SAMPLING DEPTH (feet)	90	90	135	135	155	155
VOLUME WITHDRAWN (cc)	360	360	540	540	620	620
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	9.4	1,576
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	5.3	3,129
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	217	9.9	212	9.9	209
CHLOROBENZENE	16.2	523	16.2	540	16.2	531
4 BROMOFLUORO BENZENE	19.2	753	19.2	786	19.2	766

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
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VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV605-180	VPSV605-180	VPSV606-180 DUP	VPSV606-180 DUP	VPSV607-195	VPSV607-195
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	10:05	10:05	10:28	10:28	10:50	10:50
ANALYSIS TIME	10:08	10:08	10:29	10:29	10:52	10:52
SAMPLING DEPTH (feet)	180	180	180	180	195	195
VOLUME WITHDRAWN (cc)	720	720	720	720	780	780
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	12,172	9.3	13,794	9.4	9,719
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.5	78	10.5	103	10.6	51
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.3	2,340	5.2	2,242	5.3	3,129
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	208	9.9	180	9.9	214
CHLOROBENZENE	16.2	528	16.2	461	16.2	540
4 BROMOFLUORO BENZENE	19.2	766	19.2	668	19.3	783

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981026W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV608-25	VPSV608-25	VPSV609-40	VPSV609-40	VPSV610-60	VPSV610-60
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	11:26	11:26	12:08	12:08	12:32	12:32
ANALYSIS TIME	11:27	11:27	12:13	12:13	12:35	12:35
SAMPLING DEPTH (feet)	25	25	40	40	60	60
VOLUME WITHDRAWN (cc)	100	100	160	160	240	240
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	9.4	2,628	9.3	4,716
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	10.6	19	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	195	10.0	213	9.8	213
CHLOROBENZENE	16.1	479	16.2	545	16.1	540
4 BROMOFLUORO BENZENE	19.1	703	19.3	683	19.1	788

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981026W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV611-80	VPSV611-80	VPSV612-80 DUP	VPSV612-80 DUP	VPSV613-100	VPSV613-100
DATE	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98	10/26/98
SAMPLING TIME	16:54	12:54	13:16	13:16	13:38	13:38
ANALYSIS TIME	12:57	12:57	13:19	13:19	13:41	13:41
SAMPLING DEPTH (feet)	80	80	80	80	100	100
VOLUME WITHDRAWN (cc)	320	320	320	320	400	400
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.2	7,039	9.2	6,612	9.3	6,801
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.4	37	10.4	38	10.5	57
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.3	822	5.3	770	5.4	922
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	217	9.8	212	9.9	221
CHLOROBENZENE	16.1	550	16.1	589	16.2	512
4 BROMOFLUORO BENZENE	19.1	805	19.1	802	19.2	751

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981027W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV614-120	VPSV615-140	VPSV616-155	VPSV617-170	VPSV618-185
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	4:45	7:13	7:36	7:58	8:21	8:42
ANALYSIS TIME	04:49	07:15	07:37	07:59	08:22	08:44
SAMPLING DEPTH (feet)	--	120	140	155	170	185
VOLUME WITHDRAWN (cc)	200	480	560	620	680	740
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	32	30	26	23	12
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	6.1	4.5	2.3	3.0	2.2
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	37	47	38	6.5
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	89%	80%	105%	84%	83%	103%
CHLOROBENZENE	100%	91%	110%	103%	90%	113%
4 BROMOFLUORO BENZENE	90%	79%	91%	89%	78%	99%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981027W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV619-185 DUP	VPSV620-25	VPSV621-45	VPSV622-65	VPSV623-80	VPSV624-80 DUP
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	9:04	9:40	10:02	10:26	10:47	11:11
ANALYSIS TIME	09:07	09:41	10:03	10:26	10:48	11:12
SAMPLING DEPTH (feet)	185	25	45	65	80	80
VOLUME WITHDRAWN (cc)	740	100	180	260	320	320
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	12	nd	5.6	15	11	15
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	1.7	nd	nd	2.2	1.6	2.1
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	6.8	nd	nd	57	74	56
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	99%	97%	93%	89%	86%	80%
CHLOROBENZENE	110%	107%	104%	99%	94%	89%
4 BROMOFLUORO BENZENE	95%	92%	90%	86%	83%	77%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
JPL
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PASADENA, CA

TEG Project #981027W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV625-110	VPSV626-125	VPSV627-140	VPSV628-155	VPSV629-170	VPSV630-170 DUP
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	11:32	12:17	12:40	13:02	13:25	13:48
ANALYSIS TIME	11:34	12:19	12:42	13:04	13:26	13:49
SAMPLING DEPTH (feet)	110	125	140	155	170	170
VOLUME WITHDRAWN (cc)	440	500	560	620	680	680
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	13	18	18	17	22	24
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	1.4	1.8	1.9	1.8	3.0	3.4
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	43	81	67	75	103	112
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	92%	101%	97%	97%	97%	94%
CHLOROBENZENE	103%	104%	113%	105%	109%	106%
4 BROMOFLUORO BENZENE	89%	90%	94%	91%	95%	92%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

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GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV614-120	VPSV614-120	VPSV615-140	VPSV615-140
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	4:45	4:45	7:13	7:13	7:36	7:36
ANALYSIS TIME	4:49	4:49	7:15	7:15	7:37	7:37
SAMPLING DEPTH (feet)	--	--	120	120	140	140
VOLUME WITHDRAWN (cc)	200	200	480	480	560	560
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	9.3	3,528	9.3	3,297
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	10.5	98	10.5	72
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	5.3	597
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	10.0	192	9.9	173	9.8	226
CHLOROBENZENE	16.3	490	16.1	447	16.1	543
4 BROMOFLUORO BENZENE	19.3	737	19.0	649	19.0	752

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

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VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV616-155	VPSV616-155	VPSV617-170	VPSV617-170	VPSV618-185	VPSV618-185
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	7:58	7:58	8:21	8:21	8:42	8:42
ANALYSIS TIME	7:59	7:59	8:22	8:22	8:44	8:44
SAMPLING DEPTH (feet)	155	155	170	170	185	185
VOLUME WITHDRAWN (cc)	620	620	680	680	740	740
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.2	2,857	9.5	2,500	9.3	1,325
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.5	37	10.7	49	10.4	35
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.3	769	5.5	620	5.3	106
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	182	10.0	179	9.8	222
CHLOROBENZENE	16.1	505	16.2	442	16.1	556
4 BROMOFLUORO BENZENE	19.0	729	19.2	642	19.1	811

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981027W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV619-185 DUP	VPSV619-185 DUP	VPSV620-25	VPSV620-25	VPSV621-45	VPSV621-45
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	9:04	9:04	9:40	9:40	10:02	10:02
ANALYSIS TIME	9:07	9:07	9:41	9:41	10:03	10:03
SAMPLING DEPTH (feet)	185	185	25	25	45	45
VOLUME WITHDRAWN (cc)	740	740	100	100	180	180
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	1,339	nd	nd	9.3	620
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.6	27	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.4	109	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	213	9.9	209	9.8	201
CHLOROBENZENE	16.2	539	16.2	525	16.1	511
4 BROMOFLUORO BENZENE	19.2	783	19.2	754	19.1	740

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981027W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV622-65	VPSV622-65	VPSV623-80	VPSV623-80	VPSV624-80 DUP	VPSV624-80 DUP
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	10:26	10:26	10:47	10:47	11:11	11:11
ANALYSIS TIME	10:26	10:26	10:48	10:48	11:12	11:12
SAMPLING DEPTH (feet)	65	65	80	80	80	80
VOLUME WITHDRAWN (cc)	260	260	320	320	320	320
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	1,662	9.3	1,202	9.4	1,602
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.6	36	10.5	26	10.6	33
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.4	927	5.3	1,205	5.4	911
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	192	9.8	185	9.9	173
CHLOROBENZENE	16.2	487	16.2	461	16.2	437
4 BROMOFLUORO BENZENE	19.2	705	19.2	683	19.2	631

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981027W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV625-110	VPSV625-110	VPSV626-125	VPSV626-125	VPSV627-140	VPSV627-140
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	11:32	11:32	12:17	12:17	12:40	12:40
ANALYSIS TIME	11:34	11:34	12:19	12:19	12:42	12:42
SAMPLING DEPTH (feet)	110	110	125	125	140	140
VOLUME WITHDRAWN (cc)	440	440	500	500	560	560
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	1,471	9.4	2,025	9.4	1,982
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.5	22	10.6	29	10.6	30
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.3	698	5.3	1,317	5.3	1,089
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	199	9.9	219	9.9	209
CHLOROBENZENE	16.2	505	16.2	511	16.2	556
4 BROMOFLUORO BENZENE	19.2	732	19.2	739	19.2	770

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
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OAK GROVE DRIVE
PASADENA, CA

TEG Project #981027W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV628-155	VPSV628-155	VPSV629-170	VPSV629-170	VPSV630-170 DUP	VPSV630-170 DUP
DATE	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98	10/27/98
SAMPLING TIME	13:02	13:02	13:25	13:25	13:48	13:48
ANALYSIS TIME	13:04	13:04	13:26	13:26	13:49	13:49
SAMPLING DEPTH (feet)	155	155	170	170	170	170
VOLUME WITHDRAWN (cc)	620	620	680	680	680	680
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.3	1,892	9.3	2,419	9.4	2,597
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.5	29	10.5	48	10.6	54
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.2	1,209	5.2	1,669	5.3	1,806
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.8	209	9.8	210	9.9	204
CHLOROBENZENE	16.2	517	16.2	536	16.2	520
4 BROMOFLUORO BENZENE	19.2	748	19.2	778	19.2	753

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT # 1572.0263
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PASADENA, CA

TEG Project #981028W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV631-20	VPSV632-35	VPSV633-50	VPSV634-70	VPSV635-85
DATE	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98
SAMPLING TIME	4:55	7:27	7:48	8:09	8:31	8:53
ANALYSIS TIME	04:58	07:27	07:49	08:10	08:32	08:54
SAMPLING DEPTH (feet)	--	20	35	50	70	85
VOLUME WITHDRAWN (cc)	200	80	140	200	280	340
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	3.7
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	1.5
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	66
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	90%	81%	76%	99%	84%	86%
CHLOROBENZENE	99%	99%	93%	106%	97%	96%
4 BROMOFLUORO BENZENE	88%	93%	80%	85%	84%	83%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

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AREA COUNTS

	BLANK	BLANK	VPSV631-20	VPSV631-20	VPSV632-35	VPSV632-35	VPSV633-50	VPSV633-50
DATE	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98
SAMPLING TIME	4:55	4:55	7:27	7:27	7:48	7:48	8:09	8:09
ANALYSIS TIME	4:58	4:58	7:27	7:27	7:49	7:49	8:10	8:10
SAMPLING DEPTH (feet)	--	--	20	20	35	35	50	50
VOLUME WITHDRAWN (cc)	200	200	80	80	140	140	200	200
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	9.8	194	9.8	174	9.8	164	9.8	214
CHLOROBENZENE	16.1	487	16.1	488	16.1	459	16.1	522
4 BROMOFLUORO BENZENE	19.0	727	18.9	761	19.1	655	19.2	699

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

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GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV634-70	VPSV634-70	VPSV635-85	VPSV635-85	VPSV636-85 DUP	VPSV636-85 DUP	VPSV637-100	VPSV637-100
DATE	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98
SAMPLING TIME	8:31	8:31	8:53	8:53	9:15	9:15	9:37	9:37
ANALYSIS TIME	8:32	8:32	8:54	8:54	9:16	9:16	9:37	9:37
SAMPLING DEPTH (feet)	70	70	85	85	85	85	100	100
VOLUME WITHDRAWN (cc)	280	280	340	340	340	340	400	400
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	9.4	407	9.4	429	9.3	873
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	10.5	24	10.5	26	10.5	53
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	5.3	1,067	5.2	1,266	5.3	1,253
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	9.8	181	9.8	186	9.8	190	9.8	185
CHLOROBENZENE	16.1	477	16.2	473	16.2	481	16.2	473
4 BROMOFLUORO BENZENE	19.2	692	19.2	680	19.2	699	19.2	677

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

FOSTER WHEELER PROJECT #1572.0263
JPL
OAK GROVE DRIVE
PASADENA, CA

TEG Project #981028W1
GC SHIMADZU 14A RIGHT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV638-110	VPSV638-110	VPSV639-120	VPSV639-120	VPSV640-130	VPSV640-130
DATE	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98	10/28/98
SAMPLING TIME	9:59	9:59	10:20	10:20	10:42	10:42
ANALYSIS TIME	9:59	9:59	10:21	10:21	10:43	10:43
SAMPLING DEPTH (feet)	110	110	120	120	130	130
VOLUME WITHDRAWN (cc)	440	440	480	480	520	520
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	9.4	1,083	9.4	720	9.4	680
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	10.5	76	10.5	164	10.6	243
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.4	1,081	5.4	813	5.3	812
BENZENE	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	9.9	184	9.9	183	9.9	199
CHLOROBENZENE	16.2	472	16.3	449	16.2	480
4 BROMOFLUORO BENZENE	19.3	678	19.3	672	19.3	685

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

APPENDIX B-2

CHAIN-OF-CUSTODY FORMS

Chain of Custody Record

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

TEG Project #: 981019WI

Outside Lab: _____

Client: Foster Wheeler
Address: 611 Anton Blvd. Suite 800
Costa Mesa, CA 92626
Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/19/98 Page 1 Of 2
Client Project #: 1572.0263 Project Manager: B.G. Randolph
Location: JPL - Pasadena, CA
Collector: B.G. Randolph Date of Collection: 10/19/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
Blank	—	0839	10/19	Vapor	Syringe	X				X										Purge Volume in cc:	
VPSV-523	20	0900				X				X										80	
VPSV-524	40	0924				X				X										160	
—	60	—	No Sample - Tip #3 plugged; cannot purge or blow.																	—	
VPSV-525	85	0946				X				X										340	
—	100	1009	No Sample - Tip #5 plugged; cannot purge or blow.																	—	
VPSV-526	120	1012				X				X										480	
VPSV-527	145	1034				X				X										580	
VPSV-528 (Dup.)	145	1056				X				X										580	
VPSV-529	165	1120				X				X										660	
VPSV-530	180	1142				X				X										720	
VPSV-531	190	1204				X				X										760	
~~VPSV-532~~ —	20	1228	No Sample - Tip #1 plugged; cannot purge or blow.																	—	
VPSV-532	35	1229				X				X										140	
VPSV-533	55	1251				X				X										220	

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

B.G. Randolph 10/19/98 1500 — 1505 10-19-98

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Total # of containers:
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

TEG Disposal @ $2.00 each Return to client ___ Pickup

Chain of Custody Record

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

TEG Project #: 981019WI

Outside Lab: _____

Client: Foster Wheeler
Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626
Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/19/98 Page 2 Of 2
Client Project #: 1572.0263 Project Manager: B.G. Randolph
Location: JPL - Pasadena, CA
Collector: B.G. Randolph Date of Collection: 10/19/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
VPSV-534 (Dup.)	55	1314	10/19	Vapor	Syringe	X				X										Vol. purged in cc: 220	
VPSV-535	80	1358				X				X										320	
—	100	1423	No Sample - Tip #5 plugged; cannot purge or blow.																	—	
VPSV-536	115	1425				X				X										460	
VPSV-537	140	1448				X				X										560	

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
B.G. Randolph	10/19/98 1500		1500 10-19-98
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers:
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

Return to client Pickup

teg
isglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project #: 981020WI

Outside Lab:

Client: Foster Wheeler

Address: 611 Anton Blvd., Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/20/98 Page 1 Of 2

Client Project #: 1572.0263 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA

Collector: B.G. Randolph Date of Collection: 10/20/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
Blank	—	0525	10/20	Vapor	Syringe	X				X										Vdame Purged in cc:	
VPSV-538	160	0733	10/20			X				X										640	
VPSV-539	180	0819				X				X										720	
VPSV-540	195	0842				X				X										780	
VPSV-541 (Dup.)	195	0905				X				X										780	
VPSV-542	20	0928				X				X										80	
—	35	0949	No Sample - Tip #2 water plugged - can blow, but cannot purge																	—	
VPSV-543	60	0950				X				X										240	
VPSV-544	85	1012				X				X										340	
VPSV-545	100	1035				X				X										400	
VPSV-546 (Dup.)	100	1056				X				X										400	
VPSV-547	120	1125				X				X										480	
VPSV-548	140	1144				X				X										560	
VPSV-549	160	1206				X				X										640	
VPSV-550	180	1250				X				X										720	

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

B.G. Randolph 10/20/98 1350 — 1350 10-20-98

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Total # of containers:

Chain of Custody seals Y/N/NA

Seals intact? Y/N/NA

Received good condition/cold

Notes:

Turn around time:

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

teg

...nsglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of ...dy Record

TEG Project # : 981020W1

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/20/98 Page 2 Of 2

Client Project #: 1572.0263 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA

Collector: B.G. Randolph Date of Collection: 10/20/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals						Field Notes	Total # of containers
VPSV-551	205	1316	10/20	Vapor	Syringe	X				X															Vol. Purged in cc: 820	
VPSV-552 (Dup.)	205	1338	↓	↓	↓	X				X															820	

Relinquished by: (signature) B.G. Randolph Date / Time 10/20/98 1350

Received by: (signature) Date / Time 1350 10-20-98

Relinquished by: (signature) Date / Time

Received by: (signature) Date / Time

Total # of containers:

Chain of Custody seals Y/N/NA

Seals intact? Y/N/NA

Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

teg

isglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of ody Record

TEG Project # : 981021W1

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd., Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/21/98 Page 1 Of 2

Client Project #: 1572.0263 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA.

Collector: B.G. Randolph Date of Collection: 10/21/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
Blank	-	0515	10/21	Vapor	Syringe	X				X										Volum Purged in cc:	
VPSV-553	20	0729	10/21/98			X				X										80	
VPSV-554	40	0750				X				X										160	
VPSV-555	60	0812				X				X										240	
VPSV-556	85	0834				X				X										340	
VPSV-557	105	0857				X				X										420	
VPSV-558 (Dup.)	105	0918				X				X										420	
VPSV-559	120	0941				X				X										480	
VPSV-560	140	1003				X				X										560	
VPSV-561	160	1025				X				X										640	
VPSV-562	180	1047				X				X										720	
VPSV-563	200	1110				X				X										800	
VPSV-564 (Dup.)	200	1132				X				X										800	
VPSV-565	20	1220				X				X										80	
VPSV-566	45	1242				X				X										180	

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Blair Randolph 10/21/98 1420 1420 10-21-98

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Total # of containers:

Chain of Custody seals Y/N/NA

Seals intact? Y/N/NA

Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: ___ *TEG Disposal @ $2.00 each* ___ *Return to client* ___ *Pickup*

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of dy Record

TEG Project # : 98102IWI

Outside Lab: _____

Client: Foster Wheeler
Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626
Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/21/98 Page 2 Of 2
Client Project #: 1572.0263 Project Manager: B.G. Randolph
Location: JPL - Pasadena, CA
Collector: B.G. Randolph Date of Collection: 10/21/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
No Sample	65	—	10/21	Vapor	Syringe	X				X		No Sample; Tip #3 plugged								Vol. Purged in cc: 0	
VPSV-567	80	1305				X				X										320	
VPSV-568	105	1327				X				X										420	
VPSV-569	120	1349				X				X										480	
VPSV-570 (Dup.)	120	1412				X				X										480	

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Relinquished by: (signature) 10/21/98 1420 Date / Time Received by: (signature) 1400 10-21-98 Date / Time

Total # of containers:
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: _ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project #: 981022W1

Outside Lab: _____

Client: Foster Wheeler
Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626
Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/22/98 Page 1 Of 2
Client Project #: 1572.0263 Project Manager: B.G. Randolph
Location: JPL - Pasadena, CA
Collector: B.G. Randolph Date of Collection: 10/22/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
Blank	—		10/22	Vapor	Syringe	X				X										Volume Purged in cc:	
VPSV-571	20	0727				X				X										80	
VPSV-572	35	0748				X				X										140	
VPSV-573	50	0810				X				X										200	
VPSV-574	60	0833				X				X										240	
VPSV-575	80	0854				X				X										320	
VPSV-576 (Dup.)	80	0917				X				X										320	
VPSV-577	95	0938				X				X										380	
VPSV-578	110	1000				X				X										440	
VPSV-579	125	1022				X				X										500	
VPSV-580	140	1044				X				X										560	
VPSV-581	155	1106				X				X										620	
VPSV-582 (Dup.)	155	1128				X				X										620	
VPSV-583	20	1214				X				X										80	
VPSV-584	35	1236				X				X										140	

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
[signature]	10/22/98 1420	[signature]	10-22-98 1420
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers: _____
Chain of Custody seals Y/N/NA _____
Seals intact? Y/N/NA _____
Received good condition/cold _____

Notes:

Turn around time: _____

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project # : 981022W1

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5527

Date: 10/22/98 Page 2 Of 2

Client Project #: 1572.0263 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA

Collector: B.G. Randolph Date of Collection: 10/22/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
VPSV-SB5	50	1259	10/22	Vapor	Syringe	X				X										Vol. Purged in cc: 200	
VPSV-SB6	65	1321				X				X										260	
VPSV-SB7	80	1343				X				X										320	
VPSV-SB8 (Dup.)	80	1406				X				X										320	

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

B.G. Randolph 10/22/98 1425 10-22-98 1425

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Total # of containers:
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project # : 981023WI

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/23/98 Page 1 Of 1

Client Project #: 1522.0263 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA

Collector: B.G. Randolph Date of Collection: 10/23/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals					Field Notes	Total # of containers
Blank	—	0548	10/23	Vapor	Syringe	X				X														Volume Purged in cc:	
VPSV-589	95	0738				X				X														380	
VPSV-590	108	0800				X				X														435	
VPSV-591	118	0821				X				X														475	
B-36@20' (None)	20	0912		No Sample - Tip # plugged; cannot blow or purge.																				—	
VPSV-592	35	0915				X				X														140	
VPSV-593	55	0940				X				X														220	
VPSV-594 (Dup.)	55	1001				X				X														220	
VPSV-595	75	1023				X				X														300	
VPSV-596	92	1046				X				X														370	

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
B.G. Randolph	10/23/98 1100		10/23/98 1100
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers: _____
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project #: 981026W1

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd, Ste 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/26/98 Page 1 Of 2

Client Project #: 1572.0263 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA

Collector: B.G. Randolph Date of Collection: 10/26/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
Blank	—	0450	10/26	Vapor	Syringe	X				X										Volume Purged in cc:	
VPSV-597	25	0709				X				X										100 (Tedlar)	
VPSV-598	40	0730				X				X										160	
VPSV-599	55	0752				X				X										220	
VPSV-600 (Dup.)	55	0815				X				X										220	
VPSV-601	70	0837				X				X										280	
VPSV-602	90	0858				X				X										360	
—	115	0919	No Sample - Tip #6 is plugged; cannot purge or blow																	—	
VPSV-603	135	0922				X				X										540	
VPSV-604	155	0945				X				X										620	
VPSV-605	180	1005				X				X										720	
VPSV-606 (Dup.)	180	1028				X				X										720	
VPSV-607	195	1050				X				X										780	
VPSV-608	25	1126				X				X										100	
VPSV-609	40	1208				X				X										160	

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
B.G. Randolph	10/26/98 1345		10-26-98 1345
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers:
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

Disposal instructions: TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project #: 981026 W.I

Outside Lab: _____

Client: Foster Wheeler
Address: 611 Anton Blvd., Suite 800
Costa Mesa, CA 92626
Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/26/98 Page 2 Of 2
Client Project #: 1522.0263 Project Manager: B.G. Randolph
Location: JPL - Pasadena, CA
Collector: B.G. Randolph Date of Collection: 10/26/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals					Field Notes	Total # of containers
VPSV-610	60	1232	10/26	Vapor	Syringe	X				X														Vol. Purged in cc: 240	
VPSV-611	80	1254	"	"	"	X				X														320	
VPSV-612 (Dup.)	80	1316	"	"	"	X				X														320	
VPSV-613	100	1338	"	"	"	X				X														400	

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

B.G. Randolph 10/26/98 1345 — 1345 10-26-98

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Total # of containers:
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project #: 981027WI

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/27/98 Page 1 Of 2

Client Project #: 1572.0283 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA

Collector: B.G. Randolph Date of Collection: 10/27/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
Blank	—	0445	10/27	Vapor	Syringe	X				X										Volume Purged in cc:	
VPSV-614	120	0713				X				X										480	
VPSV-615	140	0736				X				X										560	
VPSV-616	155	0758				X				X										620	
VPSV-617	170	0821				X				X										680	
VPSV-618	185	0842				X				X										740	
VPSV-619 (Dup.)	185	0904				X				X										740	
VPSV-620	25	0940				X				X										100	
VPSV-621	45	1002				X				X										180	
VPSV-622	65	1026				X				X										260	
VPSV-623	80	1047				X				X										320	
VPSV-624 (Dup.)	80	1111				X				X										320	
—	95	1100	No Sample - Tip #5 still water plugged; can blow, but cannot purge																	—	
VPSV-625	110	1132				X				X										440	
VPSV-626	125	1212				X				X										500	

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
B.G. Randolph	10/27/98 1355		1355 10-27-98
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers: _____
Chain of Custody seals Y/N/NA
Seals intact? Y/N/NA
Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project #: 981027W1

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/27/98 Page 2 Of 2

Client Project #: 1572.0263 Project Manager: R.G. Randolph

Location: JPL - Pasadena, CA

Collector: R.G. Randolph Date of Collection: 10/27/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals					Field Notes	Total # of containers
VPSV-627	140	1240	10/27	Vapor	Syringe	X				X														Vol Purged in cc: 560	
VPSV-628	155	1302	↓	↓	↓	X				X														620	
VPSV-629	170	1325				X				X														680	
VPSV-630 (Dup.)	170	1348				X				X														680	

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

H. Randolph 10/27/98 1355 — 1355 10-27-98

Relinquished by: (signature) Date / Time Received by: (signature) Date / Time

Total # of containers:

Chain of Custody seals Y/N/NA

Seals intact? Y/N/NA

Received good condition/cold

Notes:

Turn around time: _____

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

teg

Transglobal Environmental Geochemistry
432 N. Cedros Avenue
Solana Beach, CA 92075
(619) 793-0401 Fax: (619) 793-0404

Chain of Custody Record

TEG Project # : 981028W1

Outside Lab: _____

Client: Foster Wheeler

Address: 611 Anton Blvd, Suite 800
Costa Mesa, CA 92626

Phone: 714/444-5527 Fax: 714/444-5560

Date: 10/28/98 Page 1 Of 1

Client Project #: 1572.0263 Project Manager: B.G. Randolph

Location: JPL - Pasadena, CA

Collector: B.G. Randolph Date of Collection: 10/28/98

Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals	Field Notes	Total # of containers
Blank	—	0455	10/28	Vapor	Syringe	X				X										Volume Purged in cc:	
VPSV-631	20	0727	↓	↓	↓	X				X										80	
VPSV-632	35	0748				X				X										140	
VPSV-633	50	0809				X				X										200	
VPSV-634	70	0831				X				X										280	
VPSV-635	85	0853				X				X										340	
VPSV-636 (Dup)	85	0915				X				X										340	
VPSV-637	100	0935				X				X										400	
VPSV-638	110	0959				X				X										440	
VPSV-639	120	1020				X				X										480	
VPSV-640	130	1042				X				X										520	

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
B.G. Randolph	10/28/98 1050		10-28-98 1050
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers: _____
Chain of Custody seals Y/N/NA _____
Seals intact? Y/N/NA _____
Received good condition/cold _____

Notes:

Turn around time: _____

Sample disposal instructions: ___ TEG Disposal @ $2.00 each ___ Return to client ___ Pickup

APPENDIX B-3

INITIAL THREE-POINT CALIBRATION DATA

INITIAL CALIBRATION (3-POINT)

WINNEBAGO 1
SUPPLY SOURCE: ACCUSTANDARD LOT# A7120160
INSTRUMENT: SHIMADZU GC14A RIGHT

COMPOUND	DETECTOR	CAL DATE	LOW STANDARD				MID STANDARD				HIGH STANDARD				SUMMARY			
			RT	MASS	AREA	RF	RT	MASS	AREA	RF	RT	MASS	AREA	RF	AVE RT	AVE RF	SD	%RSD
CARBON TETRACHLORIDE	HALL	10/7/98	9.3	2	221.0	110.5	9.3	20.0	2133	106.7	9.3	100	11368	113.7	9.3	110.3	3.5	3.2%
CHLOROETHANE/BROMOMETHANE	HALL	10/18/98	4.4	10	880.0	88.0	4.3	40.0	3725	93.1	4.2	160	14694	91.8	4.3	91.0	2.7	2.9%
CHLOROFORM	HALL	10/7/98	8.2	2	418.0	209.0	8.2	20.0	4097	204.9	8.2	100	19147	191.5	8.2	201.8	9.2	4.5%
1,1-DICHLORO ETHANE	HALL	10/7/98	7.1	2	248.0	124.0	7.1	20.0	2442	122.1	7.1	100	12266	122.7	7.1	122.9	1.0	0.8%
1,2-DICHLORO ETHANE	HALL	10/7/98	9.4	2	411.0	205.5	9.4	20.0	4364	218.2	9.4	100	23706	237.1	9.4	220.3	15.9	7.2%
1,1-DICHLORO ETHENE	PID	10/7/98	5.4	2	18.7	9.4	5.4	20.0	183	9.1	5.4	100	955	9.6	5.4	9.3	0.2	2.3%
CIS-1,2-DICHLORO ETHENE	PID	10/7/98	7.9	2	24.6	12.3	7.9	20.0	239	11.9	7.9	100	1188	11.9	7.9	12.0	0.2	1.9%
TRANS-1,2-DICHLORO ETHENE	PID	10/7/98	6.4	2	42.7	21.4	6.4	20.0	419	21.0	6.4	100	2054	20.5	6.4	20.9	0.4	1.9%
DICHLOROMETHANE	HALL	10/7/98	6.1	2	215.0	107.5	6.1	20.0	2363	118.2	6.1	100	12597	126.0	6.1	117.2	9.3	7.9%
TETRACHLORO ETHENE	PID	10/7/98	14.3	2	24.4	12.2	14.3	20.0	256	12.8	14.3	100	1263	12.6	14.3	12.5	0.3	2.4%
1,1,1,2-TETRACHLORO ETHANE/CHLOROBENZENE	HALL	10/7/98	16.2	4	315.0	78.8	16.2	40.0	3349	83.7	16.2	200	18095	90.5	16.2	84.3	5.9	7.0%
1,1,2,2-TETRACHLORO ETHANE	HALL	10/7/98	18.8	2	127.0	63.5	18.8	20.0	1451	72.6	18.8	100	7807	78.1	18.8	71.4	7.4	10.3%
1,1,1-TRICHLORO ETHANE	HALL	10/7/98	8.8	2	236.0	118.0	8.8	20.0	2715	135.8	8.8	100	14192	141.9	8.8	131.9	12.4	9.4%
1,1,2-TRICHLORO ETHANE	HALL	10/7/98	13.6	2	183.0	91.5	13.6	20.0	2034	101.7	13.6	100	9687	96.9	13.6	96.7	5.1	5.3%
TRICHLORO ETHENE	PID	10/7/98	10.5	2	33.9	17.0	10.5	20.0	313	15.7	10.5	100	1566	15.7	10.5	16.1	0.7	4.6%
VINYL CHLORIDE	HALL	10/18/98	3.7	5	719.0	143.8	3.7	20.0	2942	147.1	3.6	80	11870	148.4	3.7	146.4	2.4	1.6%
TRICHLOROFLUOROMETHANE (FR11)	HALL	10/18/98	4.8	5	1677.0	335.4	4.7	20.0	5667	283.4	4.5	80	20720	259.0	4.7	292.6	39.0	13.3%
DICHLORODIFLUOROMETHANE (FR12)	HALL	10/18/98	3.3	5	25.0	5.0	3.2	20.0	104	5.2	3.2	80	461	5.8	3.2	5.3	0.4	7.5%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	10/7/98	5.2	2	34.7	17.4	5.2	20.0	305	15.3	5.2	100	1609	16.1	5.2	16.2	1.1	6.5%
BENZENE	PID	10/7/98	9.5	2	56.6	28.3	9.5	20.0	539	27.0	9.5	100	2572	25.7	9.5	27.0	1.3	4.8%
ETHYLBENZENE	PID	10/7/98	16.2	2	54.4	27.2	16.2	20.0	544	27.2	16.2	100	2701	27.0	16.2	27.1	0.1	0.4%
TOLUENE	PID	10/7/98	12.9	2	55.0	27.5	12.9	20.0	542	27.1	12.9	100	2615	26.2	12.9	26.9	0.7	2.6%
m&p-XYLENES	PID	10/7/98	16.4	4	124.7	31.2	16.4	40.0	1296	32.4	16.4	200	6339	31.7	16.4	31.8	0.6	1.9%
o-XYLENE	PID	10/7/98	17.4	2	55.5	27.8	17.4	20.0	519	25.9	17.4	100	2529	25.3	17.4	26.3	1.3	4.9%
CHLOROMETHANE	HALL	10/18/98	3.6	5	102	20.40	3.6	20	490	24.50	3.5	80	2295	28.69	3.6	24.5	4.1	16.9%
1,4 DIFLUORO BENZENE	PID	10/7/98	9.8	2	21.0	10.5	9.8	20.0	223	11.1	9.8	100	1069	10.7	9.8	10.8	0.3	3.0%
CHLOROBENZENE	PID	10/7/98	16.1	2	47.6	23.8	16.1	20.0	512	25.6	16.1	100	2440	24.4	16.1	24.6	0.9	3.7%
4 BROMOFLUORO BENZENE	PID	10/7/98	19.1	2	79.6	39.8	19.1	20.0	839	42.0	19.1	100	4169	41.7	19.1	41.1	1.2	2.9%

ANALYSES PERFORMED IN TEG'S MOBILE LABORATORY
ANALYSES PERFORMED BY: ALLEN GLOVER
DATA REVIEWED BY:

SOIL GAS INITIAL LCS STANDARD REPORT (3-POINT CALIBRATION VERIFICATION)

LAB: TEG WINN 1
SUPPLY SOURCE: ACCUSTANDARD LOT# A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

COMPOUND	DETECTOR	CAL DATE	AVE RF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	10/7/98	110.3	20	9.3	2,528	126.4	14.6%
CHLOROFORM	HALL	10/7/98	201.8	20	8.2	4,249	212.5	5.3%
1,1-DICHLORO ETHANE	HALL	10/7/98	122.9	20	7.1	2,295	114.8	6.6%
1,2-DICHLORO ETHANE	HALL	10/7/98	220.3	20	9.4	4,672	233.6	6.0%
1,1-DICHLORO ETHENE	PID	10/7/98	9.3	20	5.4	206	10.3	10.8%
CIS-1,2-DICHLORO ETHENE	PID	10/7/98	12.0	20	7.9	251	12.6	4.6%
TRANS-1,2-DICHLORO ETHENE	PID	10/7/98	20.9	20	6.4	458	22.9	9.6%
DICHLOROMETHANE	HALL	10/7/98	117.2	20	6.1	2,500	125.0	6.7%
TETRACHLORO ETHENE	PID	10/7/98	12.5	20	14.3	278	13.9	11.2%
1,1,1,2-TETRACHLORO ETHANE/CHLOROBENZENE	HALL	10/7/98	84.3	40	16.2	3,776	94.4	12.0%
1,1,2,2-TETRACHLORO ETHANE	HALL	10/7/98	71.4	20	18.8	1,587	79.4	11.1%
1,1,1-TRICHLORO ETHANE	HALL	10/7/98	131.9	20	8.8	2,827	141.4	7.2%
1,1,2-TRICHLORO ETHANE	HALL	10/7/98	96.7	20	13.6	2,113	105.7	9.3%
TRICHLORO ETHENE	PID	10/7/98	16.1	20	10.5	340	17.0	5.6%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	10/7/98	16.2	20	5.2	330	16.5	1.9%
BENZENE	PID	10/7/98	27.0	20	9.5	571	28.6	5.7%
ETHYLBENZENE	PID	10/7/98	27.1	20	16.2	564	28.2	4.1%
TOLUENE	PID	10/7/98	26.9	20	12.9	601	30.1	11.7%
m&p-XYLENES	PID	10/7/98	31.8	40	16.4	1,339	33.5	5.3%
o-XYLENE	PID	10/7/98	26.3	20	17.4	564	28.2	7.2%
1,4 DIFLUORO BENZENE	PID	10/7/98	10.8	20	9.8	234	11.7	8.3%
CHLOROBENZENE	PID	10/7/98	24.6	20	16.1	563	28.2	14.4%
4 BROMOFLUORO BENZENE	PID	10/7/98	41.1	20	19.1	870	43.5	5.8%

ANALYSES PERFORMED IN TEG'S MOBILE LABORATORY
ANALYSES PERFORMED BY: ALLEN GLOVER
DATA REVIEWED BY:

APPENDIX B-4

DAILY OPENING, CLOSING, AND CONTINUING CALIBRATION VERIFICATION REPORTS

QA/QC - CALIBRATION DATA

DATE: 10/19/98
TEG Project #981019W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			OPENING STANDARD					CLOSING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,109	105.5	4.4%	20	9.4	2,089	104.5	5.3%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,572	128.6	4.6%	20	7.1	2,116	105.8	13.9%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	4,270	213.5	3.1%	20	9.5	4,334	216.7	1.6%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	164	8.2	11.8%	20	5.4	170	8.5	8.6%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	234	11.7	2.5%	20	7.9	215	10.8	10.4%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	438	21.9	4.8%	20	6.4	392	19.6	6.2%
TETRACHLORO ETHENE	PID	12.5	20	14.4	264	13.2	5.6%	20	14.5	224	11.2	10.4%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,669	133.5	1.2%	20	8.9	2,531	126.6	4.1%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,003	100.2	3.6%	20	13.8	2,133	106.7	10.3%
TRICHLORO ETHENE	PID	16.1	20	10.6	289	14.5	10.2%	20	10.6	264	13.2	18.0%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.4	355	17.8	9.6%	20	5.3	352	17.6	8.6%
BENZENE	PID	27.0	20	9.5	528	26.4	2.2%	20	9.6	477	23.9	11.7%
ETHYLBENZENE	PID	27.1	20	16.3	570	28.5	5.2%	20	16.4	507	25.4	6.5%
TOLUENE	PID	26.9	20	13.0	536	26.8	0.4%	20	13.1	465	23.3	13.6%
m&p-XYLENES	PID	31.8	40	16.5	1,236	30.9	2.8%	40	16.6	1,114	27.9	12.4%
o-XYLENE	PID	26.3	20	17.6	522	26.1	0.8%	20	17.7	457	22.9	13.1%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	223	11.2	3.2%	20	9.9	198	9.9	8.3%
CHLOROBENZENE	PID	24.6	20	16.2	506	25.3	2.8%	20	16.3	409	20.5	16.9%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.3	847	42.4	3.0%	20	19.3	694	34.7	15.6%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/19/98
TEG Project #981019W1
WINNEBAGO 1

SUPPLY SOURCE: QUALITY CONTROL (CONTINUING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

COMPOUND	DETECTOR	AVE RF	CONTINUING STANDARD MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,506	125.3	13.6%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,471	123.6	0.5%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	5,047	252.4	14.5%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	155	7.8	16.7%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	214	10.7	10.8%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	374	18.7	10.5%
TETRACHLORO ETHENE	PID	12.5	20	14.4	236	11.8	5.6%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,772	138.6	5.1%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,205	110.3	14.0%
TRICHLORO ETHENE	PID	16.1	20	10.6	275	13.8	14.6%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	310	15.5	4.3%
BENZENE	PID	27.0	20	9.5	483	24.2	10.6%
ETHYLBENZENE	PID	27.1	20	16.3	479	24.0	11.6%
TOLUENE	PID	26.9	20	13.0	484	24.2	10.0%
m&p-XYLENES	PID	31.8	40	16.5	1,145	28.6	10.0%
o-XYLENE	PID	26.3	20	17.6	473	23.7	10.1%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	199	10.0	7.9%
CHLOROBENZENE	PID	24.6	20	16.2	478	23.9	2.8%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.2	752	37.6	8.5%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/20/98
TEG Project #981020W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			OPENING STANDARD					CLOSING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,405	120.3	9.0%	20	9.3	2,199	110.0	0.3%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.0	2,533	126.7	3.1%	20	7.1	2,052	102.6	16.5%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.4	4,157	207.9	5.7%	20	9.5	4,062	203.1	7.8%
1,1-DICHLORO ETHENE	PID	9.3	20	5.3	197	9.9	5.9%	20	5.4	192	9.6	3.2%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.8	256	12.8	6.7%	20	7.9	204	10.2	15.0%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	468	23.4	12.0%	20	6.4	376	18.8	10.0%
TETRACHLORO ETHENE	PID	12.5	20	14.4	271	13.6	8.4%	20	14.5	261	13.1	4.4%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.8	2,805	140.3	6.3%	20	8.9	2,597	129.9	1.6%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,021	101.1	4.5%	20	13.7	2,134	106.7	10.3%
TRICHLORO ETHENE	PID	16.1	20	10.5	336	16.8	4.3%	20	10.6	268	13.4	16.8%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.1	361	18.1	11.4%	20	5.2	365	18.3	12.7%
BENZENE	PID	27.0	20	9.4	606	30.3	12.2%	20	9.5	444	22.2	17.8%
ETHYLBENZENE	PID	27.1	20	16.3	621	31.1	14.6%	20	16.3	477	23.9	12.0%
TOLUENE	PID	26.9	20	13.0	598	29.9	11.2%	20	13.1	466	23.3	13.4%
m&p-XYLENES	PID	31.8	40	16.4	1,383	34.6	8.7%	40	16.6	1,087	27.2	14.5%
o-XYLENE	PID	26.3	20	17.5	577	28.9	9.7%	20	17.7	488	24.4	7.2%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.8	230	11.5	6.5%	20	9.9	189	9.5	12.5%
CHLOROBENZENE	PID	24.6	20	16.2	514	25.7	4.5%	20	16.3	466	23.3	5.3%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.2	932	46.6	13.4%	20	19.4	766	38.3	6.8%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/20/98
TEG Project #981020W1
WINNEBAGO 1

SUPPLY SOURCE: QUALITY CONTROL (CONTINUING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			CONTINUING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,612	130.6	18.4%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.0	2,610	130.5	6.2%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	4,800	240.0	8.9%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	165	8.3	11.3%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	224	11.2	6.7%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	358	17.9	14.4%
TETRACHLORO ETHENE	PID	12.5	20	14.4	260	13.0	4.0%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	3,122	156.1	18.3%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,269	113.5	17.3%
TRICHLORO ETHENE	PID	16.1	20	10.6	316	15.8	1.9%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	317	15.9	2.2%
BENZENE	PID	27.0	20	9.5	466	23.3	13.7%
ETHYLBENZENE	PID	27.1	20	16.3	480	24.0	11.4%
TOLUENE	PID	26.9	20	13.0	521	26.1	3.2%
m&p-XYLENES	PID	31.8	40	16.5	1,143	28.6	10.1%
o-XYLENE	PID	26.3	20	17.6	532	26.6	1.1%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	211	10.6	2.3%
CHLOROBENZENE	PID	24.6	20	16.2	482	24.1	2.0%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.3	831	41.6	1.1%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/21/98
TEG Project #981021W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			OPENING STANDARD					CLOSING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,286	114.3	3.6%	20	9.4	1,867	93.4	15.4%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,168	108.4	11.8%	20	7.1	2,494	124.7	1.5%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	4,449	222.5	1.0%	20	9.5	3,799	190.0	13.8%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	162	8.1	12.9%	20	5.4	158	7.9	15.1%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	220	11.0	8.3%	20	7.9	254	12.7	5.8%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	413	20.7	1.2%	20	6.4	393	19.7	6.0%
TETRACHLORO ETHENE	PID	12.5	20	14.4	272	13.6	8.8%	20	14.5	276	13.8	10.4%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,621	131.1	0.6%	20	8.9	2,576	128.8	2.4%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,066	103.3	6.8%	20	13.8	1,914	95.7	1.0%
TRICHLORO ETHENE	PID	16.1	20	10.6	305	15.3	5.3%	20	10.6	306	15.3	5.0%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	301	15.1	7.1%	20	5.3	339	17.0	4.6%
BENZENE	PID	27.0	20	9.5	539	27.0	0.2%	20	9.6	532	26.6	1.5%
ETHYLBENZENE	PID	27.1	20	16.3	606	30.3	11.8%	20	16.4	587	29.4	8.3%
TOLUENE	PID	26.9	20	13.0	556	27.8	3.3%	20	13.1	545	27.3	1.3%
m&p-XYLENES	PID	31.8	40	16.5	1,292	32.3	1.6%	40	16.6	1,250	31.3	1.7%
o-XYLENE	PID	26.3	20	17.6	541	27.1	2.9%	20	17.7	498	24.9	5.3%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	237	11.9	9.7%	20	9.9	232	11.6	7.4%
CHLOROBENZENE	PID	24.6	20	16.2	503	25.2	2.2%	20	16.3	483	24.2	1.8%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.3	881	44.1	7.2%	20	19.4	813	40.7	1.1%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/21/98
TEG Project #981021W1
WINNEBAGO 1

SUPPLY SOURCE: QUALITY CONTROL (CONTINUING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

COMPOUND	DETECTOR	AVE RF	CONTINUING STANDARD MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,355	117.8	6.8%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,598	129.9	5.7%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	5,028	251.4	14.1%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	151	7.6	18.8%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	221	11.1	7.9%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	375	18.8	10.3%
TETRACHLORO ETHENE	PID	12.5	20	14.4	264	13.2	5.6%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,844	142.2	7.8%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,283	114.2	18.0%
TRICHLORO ETHENE	PID	16.1	20	10.6	265	13.3	17.7%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	318	15.9	1.9%
BENZENE	PID	27.0	20	9.5	480	24.0	11.1%
ETHYLBENZENE	PID	27.1	20	16.3	541	27.1	0.2%
TOLUENE	PID	26.9	20	13.0	536	26.8	0.4%
m&p-XYLENES	PID	31.8	40	16.5	1,219	30.5	4.2%
o-XYLENE	PID	26.3	20	17.6	525	26.3	0.2%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	199	10.0	7.9%
CHLOROBENZENE	PID	24.6	20	16.2	544	27.2	10.6%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.3	825	41.3	0.4%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/22/98
TEG Project #981022W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			OPENING STANDARD					CLOSING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.4	2,406	120.3	9.1%	20	9.4	2,425	121.3	9.9%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,537	126.9	3.2%	20	7.1	2,052	102.6	16.5%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	4,890	244.5	11.0%	20	9.5	3,989	199.5	9.5%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	191	9.6	2.7%	20	5.4	182	9.1	2.2%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	273	13.7	13.8%	20	7.9	263	13.2	9.6%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.5	472	23.6	12.9%	20	6.4	456	22.8	9.1%
TETRACHLORO ETHENE	PID	12.5	20	14.5	267	13.4	6.8%	20	14.5	267	13.4	6.8%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,994	149.7	13.5%	20	8.9	2,740	137.0	3.9%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.8	1,795	89.8	7.2%	20	13.8	2,248	112.4	16.2%
TRICHLORO ETHENE	PID	16.1	20	10.6	341	17.1	5.9%	20	10.6	324	16.2	0.6%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	333	16.7	2.8%	20	5.2	354	17.7	9.3%
BENZENE	PID	27.0	20	9.6	600	30.0	11.1%	20	9.6	583	29.2	8.0%
ETHYLBENZENE	PID	27.1	20	16.4	536	26.8	1.1%	20	16.4	642	32.1	18.5%
TOLUENE	PID	26.9	20	13.1	600	30.0	11.5%	20	13.1	588	29.4	9.3%
m&p-XYLENES	PID	31.8	40	16.6	1,367	34.2	7.5%	40	16.6	1,345	33.6	5.7%
o-XYLENE	PID	26.3	20	17.7	583	29.2	10.8%	20	17.7	566	28.3	7.6%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	236	11.8	9.3%	20	10.0	244	12.2	13.0%
CHLOROBENZENE	PID	24.6	20	16.3	511	25.6	3.9%	20	16.4	503	25.2	2.2%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.4	935	46.8	13.7%	20	19.4	877	43.9	6.7%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/22/98
TEG Project #981022W1
WINNEBAGO 1

SUPPLY SOURCE: QUALITY CONTROL (CONTINUING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			CONTINUING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,461	123.1	11.6%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,123	106.2	13.6%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	4,009	200.5	9.0%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	193	9.7	3.8%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	252	12.6	5.0%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	399	20.0	4.5%
TETRACHLORO ETHENE	PID	12.5	20	14.4	276	13.8	10.4%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,704	135.2	2.5%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,063	103.2	6.7%
TRICHLORO ETHENE	PID	16.1	20	10.5	310	15.5	3.7%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	286	14.3	11.7%
BENZENE	PID	27.0	20	9.5	564	28.2	4.4%
ETHYLBENZENE	PID	27.1	20	16.3	619	31.0	14.2%
TOLUENE	PID	26.9	20	13.0	541	27.1	0.6%
m&p-XYLENES	PID	31.8	40	16.5	1,308	32.7	2.8%
o-XYLENE	PID	26.3	20	17.5	549	27.5	4.4%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	233	11.7	7.9%
CHLOROBENZENE	PID	24.6	20	16.2	498	24.9	1.2%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.2	865	43.3	5.2%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/23/98
TEG Project #981023W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

COMPOUND	DETECTOR	AVE RF	OPENING STANDARD					CLOSING STANDARD				
			MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.4	2,216	110.8	0.5%	20	9.4	2,201	110.1	0.2%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,660	133.0	8.2%	20	7.1	2,328	116.4	5.3%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.6	4,582	229.1	4.0%	20	9.5	3,762	188.1	14.6%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	186	9.3	0.0%	20	5.4	156	7.8	16.1%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	266	13.3	10.8%	20	7.9	256	12.8	6.7%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.5	464	23.2	11.0%	20	6.5	389	19.5	6.9%
TETRACHLORO ETHENE	PID	12.5	20	14.5	270	13.5	8.0%	20	14.5	285	14.3	14.0%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,883	144.2	9.3%	20	8.9	2,521	126.1	4.4%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.8	2,130	106.5	10.1%	20	13.8	1,758	87.9	9.1%
TRICHLORO ETHENE	PID	16.1	20	10.6	331	16.6	2.8%	20	10.6	324	16.2	0.6%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	317	15.9	2.2%	20	5.2	337	16.9	4.0%
BENZENE	PID	27.0	20	9.6	581	29.1	7.6%	20	9.6	573	28.7	6.1%
ETHYLBENZENE	PID	27.1	20	16.4	524	26.2	3.3%	20	16.4	616	30.8	13.7%
TOLUENE	PID	26.9	20	13.1	602	30.1	11.9%	20	13.1	576	28.8	7.1%
m&p-XYLENES	PID	31.8	40	16.6	1,382	34.6	8.6%	40	16.6	1,328	33.2	4.4%
o-XYLENE	PID	26.3	20	17.7	593	29.7	12.7%	20	17.7	562	28.1	6.8%
1,4 DIFLUORO BENZENE	PID	10.8	20	10.0	219	11.0	1.4%	20	9.9	253	12.7	17.1%
CHLOROBENZENE	PID	24.6	20	16.4	509	25.5	3.5%	20	16.3	529	26.5	7.5%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.4	907	45.4	10.3%	20	19.4	853	42.7	3.8%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/26/98
TEG Project #981026W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			OPENING STANDARD					CLOSING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.4	2,309	115.5	4.7%	20	9.3	2,574	128.7	16.7%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,296	114.8	6.6%	20	7.1	2,210	110.5	10.1%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.6	3,794	189.7	13.9%	20	9.5	4,306	215.3	2.3%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	199	10.0	7.0%	20	5.4	157	7.9	15.6%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	264	13.2	10.0%	20	7.9	226	11.3	5.8%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.5	464	23.2	11.0%	20	6.4	389	19.5	6.9%
TETRACHLORO ETHENE	PID	12.5	20	14.5	280	14.0	12.0%	20	14.5	251	12.6	0.4%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,650	132.5	0.5%	20	8.9	3,012	150.6	14.2%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.8	1,956	97.8	1.1%	20	13.7	2,297	114.9	18.8%
TRICHLORO ETHENE	PID	16.1	20	10.7	310	15.5	3.7%	20	10.6	293	14.7	9.0%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	332	16.6	2.5%	20	5.2	286	14.3	11.7%
BENZENE	PID	27.0	20	9.6	589	29.5	9.1%	20	9.5	507	25.4	6.1%
ETHYLBENZENE	PID	27.1	20	16.4	616	30.8	13.7%	20	16.3	544	27.2	0.4%
TOLUENE	PID	26.9	20	13.1	591	29.6	9.9%	20	13.0	513	25.7	4.6%
m&p-XYLENES	PID	31.8	40	16.6	1,386	34.7	9.0%	40	16.5	1,207	30.2	5.1%
o-XYLENE	PID	26.3	20	17.7	597	29.9	13.5%	20	17.6	512	25.6	2.7%
1,4 DIFLUORO BENZENE	PID	10.8	20	10.0	230	11.5	6.5%	20	9.9	211	10.6	2.3%
CHLOROBENZENE	PID	24.6	20	16.4	518	25.9	5.3%	20	16.3	487	24.4	1.0%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.4	932	46.6	13.4%	20	19.3	780	39.0	5.1%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/26/98
TEG Project #981026W1
WINNEBAGO 1

SUPPLY SOURCE: QUALITY CONTROL (CONTINUING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			CONTINUING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.2	2,199	110.0	0.3%
1,1-DICHLORO ETHANE	HALL	122.9	20	6.9	2,250	112.5	8.5%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.3	5,034	251.7	14.3%
1,1-DICHLORO ETHENE	PID	9.3	20	5.3	153	7.7	17.7%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.7	216	10.8	10.0%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.3	375	18.8	10.3%
TETRACHLORO ETHENE	PID	12.5	20	14.3	287	14.4	14.8%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.7	3,031	151.6	14.9%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.6	2,076	103.8	7.3%
TRICHLORO ETHENE	PID	16.1	20	10.4	317	15.9	1.6%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.1	357	17.9	10.2%
BENZENE	PID	27.0	20	9.3	484	24.2	10.4%
ETHYLBENZENE	PID	27.1	20	16.3	645	32.3	19.0%
TOLUENE	PID	26.9	20	12.9	584	29.2	8.6%
m&p-XYLENES	PID	31.8	40	16.4	1,316	32.9	3.5%
o-XYLENE	PID	26.3	20	17.5	570	28.5	8.4%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.7	200	10.0	7.4%
CHLOROBENZENE	PID	24.6	20	16.2	498	24.9	1.2%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.2	904	45.2	10.0%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/27/98
TEG Project #981027W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			OPENING STANDARD					CLOSING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.4	2,508	125.4	13.7%	20	9.3	2,350	117.5	6.5%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,144	107.2	12.8%	20	7.1	2,418	120.9	1.6%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	4,155	207.8	5.7%	20	9.4	4,610	230.5	4.6%
1,1-DICHLORO ETHENE	PID	9.3	20	5.5	182	9.1	2.2%	20	5.4	152	7.6	18.3%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	8.0	224	11.2	6.7%	20	7.9	222	11.1	7.5%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.5	430	21.5	2.9%	20	6.4	388	19.4	7.2%
TETRACHLORO ETHENE	PID	12.5	20	14.5	251	12.6	0.4%	20	14.4	273	13.7	9.2%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,785	139.3	5.6%	20	8.9	2,811	140.6	6.6%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.8	2,124	106.2	9.8%	20	13.7	2,242	112.1	15.9%
TRICHLORO ETHENE	PID	16.1	20	10.6	278	13.9	13.7%	20	10.5	273	13.7	15.2%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.3	294	14.7	9.3%	20	5.2	350	17.5	8.0%
BENZENE	PID	27.0	20	9.6	499	25.0	7.6%	20	9.5	498	24.9	7.8%
ETHYLBENZENE	PID	27.1	20	16.3	514	25.7	5.2%	20	16.2	535	26.8	1.3%
TOLUENE	PID	26.9	20	13.1	512	25.6	4.8%	20	13.0	579	29.0	7.6%
m&p-XYLENES	PID	31.8	40	16.5	1,232	30.8	3.1%	40	16.4	1,313	32.8	3.2%
o-XYLENE	PID	26.3	20	17.6	480	24.0	8.7%	20	17.5	565	28.3	7.4%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	211	10.6	2.3%	20	9.8	207	10.4	4.2%
CHLOROBENZENE	PID	24.6	20	16.3	517	25.9	5.1%	20	16.1	569	28.5	15.7%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.3	824	41.2	0.2%	20	19.1	863	43.2	5.0%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/27/98
TEG Project #981027W1
WINNEBAGO 1

SUPPLY SOURCE: QUALITY CONTROL (CONTINUING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			CONTINUING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.3	2,374	118.7	7.6%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.1	2,664	133.2	8.4%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.5	4,467	223.4	1.4%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	152	7.6	18.3%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.9	221	11.1	7.9%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	376	18.8	10.0%
TETRACHLORO ETHENE	PID	12.5	20	14.4	265	13.3	6.0%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.9	2,675	133.8	1.4%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.7	2,186	109.3	13.0%
TRICHLORO ETHENE	PID	16.1	20	10.5	273	13.7	15.2%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	359	18.0	10.8%
BENZENE	PID	27.0	20	9.5	494	24.7	8.5%
ETHYLBENZENE	PID	27.1	20	16.3	598	29.9	10.3%
TOLUENE	PID	26.9	20	13.0	543	27.2	0.9%
m&p-XYLENES	PID	31.8	40	16.4	1,276	31.9	0.3%
o-XYLENE	PID	26.3	20	17.5	526	26.3	0.0%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.9	204	10.2	5.6%
CHLOROBENZENE	PID	24.6	20	16.2	487	24.4	1.0%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.2	838	41.9	1.9%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN

QA/QC - CALIBRATION DATA

DATE: 10/28/98
TEG Project #981026W1
WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A7120160
SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170
INSTRUMENT: SHIMADZU GC14A RIGHT

			OPENING STANDARD					CLOSING STANDARD				
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	RF	%DIFF	MASS	RT	AREA	RF	%DIFF
CARBON TETRACHLORIDE	HALL	110.3	20	9.2	2,090	104.5	5.3%	20	9.3	1,969	98.5	10.7%
1,1-DICHLORO ETHANE	HALL	122.9	20	7.0	2,161	108.1	12.1%	20	7.1	2,721	136.1	10.7%
1,2-DICHLORO ETHANE	HALL	220.3	20	9.4	3,842	192.1	12.8%	20	9.5	3,879	194.0	12.0%
1,1-DICHLORO ETHENE	PID	9.3	20	5.4	189	9.5	1.6%	20	5.4	163	8.2	12.4%
CIS-1,2-DICHLORO ETHENE	PID	12.0	20	7.8	214	10.7	10.8%	20	7.9	234	11.7	2.5%
TRANS-1,2-DICHLORO ETHENE	PID	20.9	20	6.4	415	20.8	0.7%	20	6.4	371	18.6	11.2%
TETRACHLORO ETHENE	PID	12.5	20	14.3	238	11.9	4.8%	20	14.4	272	13.6	8.8%
1,1,1-TRICHLORO ETHANE	HALL	131.9	20	8.8	2,507	125.4	5.0%	20	8.9	2,457	122.9	6.9%
1,1,2-TRICHLORO ETHANE	HALL	96.7	20	13.6	2,024	101.2	4.7%	20	13.7	2,057	102.9	6.4%
TRICHLORO ETHENE	PID	16.1	20	10.5	296	14.8	8.1%	20	10.6	265	13.3	17.7%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	16.2	20	5.2	346	17.3	6.8%	20	5.2	347	17.4	7.1%
BENZENE	PID	27.0	20	9.4	488	24.4	9.6%	20	9.5	492	24.6	8.9%
ETHYLBENZENE	PID	27.1	20	16.2	511	25.6	5.7%	20	16.3	530	26.5	2.2%
TOLUENE	PID	26.9	20	12.9	511	25.6	5.0%	20	13.0	556	27.8	3.3%
m&p-XYLENES	PID	31.8	40	16.3	1,110	27.8	12.7%	40	16.5	1,266	31.7	0.5%
o-XYLENE	PID	26.3	20	17.4	503	25.2	4.4%	20	17.6	522	26.1	0.8%
1,4 DIFLUORO BENZENE	PID	10.8	20	9.8	211	10.6	2.3%	20	9.9	199	10.0	7.9%
CHLOROBENZENE	PID	24.6	20	16.1	502	25.1	2.0%	20	16.2	535	26.8	8.7%
4 BROMOFLUORO BENZENE	PID	41.1	20	19.0	804	40.2	2.2%	20	19.2	833	41.7	1.3%

ANALYSES PERFORMED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: MR. ALLEN GLOVER
DATA REVIEWED BY: DR. BLAYNE HARTMAN